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ABSTRACT

A study of the food sector in Denmark was limited to the slaughterhouse, dairy, beverages sectors. The food sector was the most important single industry in the Danish economy. It was the largest manufacturing sector, generated one-third of total manufacturing, and comprised approximately 8 percent of the total Danish gross domestic product. It was a very heterogeneous sector predominantly made up of large companies. With no legal requirement for continuing training under Danish law, a tradition developed over the years with regard to initial and continuing training that was based solely on voluntary agreements between management and work force. The main principle of all vocational training was that the state made resources available in its budget. The chosen strategic course that aims to establish a customer-supplier relationship with foreign food companies by providing a high level of market readiness regarding quality, taste, appearance, and packaging of primary products would require the Danish food sector's product development efforts to be strengthened. The strategy would require the improvement of a number of commercial skills (languages, selling, marketing, and intercultural activities) in programs with a distinct European base. Four companies were involved in case studies: Loven Petfood A/S, Nr. Vium Mejeri, Carlsberg A/S, and Steff/Houlberg. Each case study described the company, continuing vocational training, specific training programs, and training assessment. (YLB)

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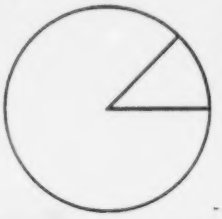

DENMARK
REPORT

FOOD AND BEVERAGES SECTOR

DK

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TASK FORCE - Human Resources, Education, Training and Youth

CE 072 312

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FOOD AND BEVERAGES SECTOR

TRAINING IN THE FOOD AND BEVERAGES SECTOR IN DENMARK

REPORT FOR THE FORCE PROGRAMME

drawn up by
Ole Holst

1993

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Commission of the European Communities
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under the responsibility of François Delay, Crège Management and in close collaboration with Tina Bertzeletou, CEDEFOP.

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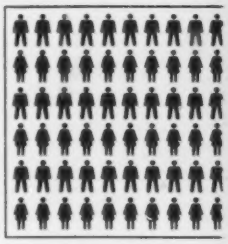
PART 1:

SECTORAL CONTEXT



Introduction

1. **The food and beverages sector**
2. **Market environment and social context**
3. **Employment**
4. **Training and recruitment**
5. **Future training requirements**
6. **Summary**

Appendix

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INTRODUCTION

1.

The purpose of this report is to provide the overall European study with an understanding of the food sector in Denmark, in general, with particular reference to the accompanying case studies, placing these in the national context.

It has, however, proved necessary to restrict the subject matter of the report in comparison to what has been defined by the central team under NACE 15. The report thus places special emphasis on the slaughterhouse and dairy sectors which, in various areas, constitute the Danish food sector. These two sectors are particularly important and interesting in respect of the potential of the Danish food sector. In economic terms they are similarly of major importance with regard to employment and exports.

The programme considered it important to include the beverages sector. This has, however, proved difficult since, for traditional reasons, this sector is not included in the Danish food sector. Data comparable to those of the remaining food sector are, therefore, not easily obtainable.

The report is based on extensive data dating back over the last five years. For some sections, however, it has been necessary to use older material. On the whole, the report is structured in accordance with the principles laid down by the central team, but with some exceptions. For example, Denmark has not passed legislation that sets specific requirements for further training of company employees. Denmark has a long history of voluntary basic and continuing training.

Similar conditions thus influence the content as well as the focus of the individual sections.

In general, the Danish food sector is a very heterogeneous sector, a fact which may impede direct comparisons. In spite of this, a number of common development trends have been identified. In principle, this report will place greater emphasis on matters of a general nature rather than on matters of a specific nature. The case studies will attempt to shed light on specific matters. The major part of the contentious sections have been discussed with a number of key people from the companies.

1. THE FOOD AND BEVERAGES SECTOR

1.

The food sector is the most important single industry in the Danish economy. Measured in turnover, the food sector is the largest manufacturing sector in Denmark with one-third of total manufacturing turnover being generated by this sector. The major part of this turnover is directly connected to agricultural production. If the food sector's share of the national gross domestic product at factor cost is calculated, this amounts to DKK 56.4 million in 1991, of which DKK 22.7 billion came from the primary sector and DKK 33.7 billion from the secondary sector. DKK 56.4 billion equals approximately 8% of the total Danish gross domestic product at factor cost.

In relation to other Western European countries the Danish economy is greatly dependant on the agricultural sector and, thus, on the production and processing of food as illustrated in Table 1.

Table 1.1 – The importance of the food sector in Denmark compared to other manufacturing countries. The food sector's share of production and employment (1985).

	Production (%)	Employment (%)
Japan	8.9	9.6
Germany	9.5	4.9
USA	12.3	7.1
Sweden	12.9	8.4
United Kingdom	13.3	9.4
France	16.8	10.2
Netherlands	24.8	14.7
New Zealand	27.1	24.1
DENMARK	33.0	17.0
Ireland	37.0	21.6

Source: OECD, Technology and the Food Processing Industry, STI Review, No. 2, Paris 1987

In 1990 a total of 238,000 people were employed in the food sector, 132,000 as employees. (see Table 1.2)

The Danish food sector is clearly dominated by two major sectors, i.e. the dairy sector and slaughterhouse and meat sector. Thus, more than half of the total turnover in the food sector (60%) comes from these two sectors. Similarly, in 1990, the same two sectors accounted for 60% of Danish food exports.

1.1 The cooperative society

Cooperative societies are a typically Danish phenomenon; approximately 75% of food sector turnover comes from cooperatively owned activities.

The overwhelming dominance of the cooperative within the Danish food sector is a result of special historical conditions which are outside the scope of this report. A brief characterization of the cooperatives should, however, be included:

The cooperative movement in Denmark is characterized by the following:

- The primary producers own the second link in the chain: finishing/processing.
- A network of many ramifications and associations acting together within all production stages.
- A high level grass roots participation within organizational work.
- A strong position with regard to possibilities of influencing the forming of national as well as international policies affecting the food and beverages sector.
- A high utilization coefficient with regard to the possibility of establishing a number of common initiatives, for example within:
  - production technology development
  - sales
  - research
  - training
  - information

The cooperative movement is still an important factor in the Danish food sector and the linking of the following stages: supply of primary products – finishing – distribution – retail, is of immense importance. As shown in Table 1.4, the cooperatives are still an important and influential group of owners, not only in respect of production, which through ownership, vertical production integration and networks have created close links. Politically, they have also been able to use their primary positions and ideological background to further the interests of the trade. Limited companies are becoming even more important, mainly as a result of continuing internationalization, as pressure from multi-nationals and other financially powerful Danish groups is giving rise to conflict in this supplier-owner relationship.

In contrast to the meat and dairy sectors, the beverages sector is organized in limited companies, a type of organization which is similarly determined by historical conditions. This sector has developed in close relation to the first wave of industrialization in Denmark which took place around the turn of the century and is, thus, primarily established by means of bank and city-based capital.

Table 1.5 thus shows that the turnover of the Danish beverages sector amounts to the equivalent of 7% of turnover in companies which are traditionally included in the food and beverages sector (excluding tobacco). Beer is the most important item within the sector. In 1989, beer sales reached DKK 5,026 million. A single company, the Carlsberg Group, accounts for approximately 75% of all beer sales.

1.2 Characteristics of the food sector

The Danish food sector is a very heterogeneous sector. The table below specifies the value produced, in terms of 1985 prices, of the individual sub-sectors.

Table 1.2 – Employment in the agricultural and related sectors (in thousands)

No. of people	1975	1980	1989	1990
Agriculture including fur producers	184	159	120	116
Slaughterhouses, meat	21	22	26	26
Dairies	12	11	10	8
Sugar refineries	4	4	3	3
Animal foodstuffs	10	11	11	11
Wholesale	4	5	4	4
Total processing	52	54	54	52
Total employment in agricultural sector	237	214	175	169
Other supplies and services	51	56	50	52
Investment	30	32	14	17
Total employment	318	302	238	238
Of which employees	146	150	130	133

Source: The Danish Farmers' Union

Table 1.3 – Breakdown of exports by commodity group (%) 1990

Grain	10%
Other animal products	15%
Dairy	20%
Pork and tinned meat	38%
Vegetable products	17%

Source: Tal om Landbrug, 1991

Table 1.5 – Manufacturing and sales of food and beverages, excluding goods resold without further processing 1989 (DKK million)

ISIC		
3111	Slaughtering, processing and preserving meat	32,300
3112–19, 312	Other food manufacture	53,899
313	Beverage sector	6,626
Total		92,825

Source: The Danish statistical year book 1991, p. 260

Table 1.4 – The cooperative movement's influence on food production

Sector	No. of companies and associations	% of production or sales
Dairy	37 cooperative dairies with 117 factories (3 companies accounting for 75% of turnover)	91% of all milk production 93% of butter production 86% of cheese production 86% of consumer milk
Preserved milk products	1 company, Milco	37% of preserved milk products
Slaughterhouses	5 cooperatives with 50 factories	92% of pork production
Cattle sales	1 association with 15 cooperatives	45% of cattle market
Poultry	1 company	46% of production
Eggs	1 company	67% of production
Seeds	1 company	70% of production
Sugar	1 company	14% of production
Fruit, flowers, vegetables	15 cooperatives	75% of production
Fur-bearing animals	1 association	98% of production
Grain and fodder	3 main companies with 103 local cooperatives	47% of grain and fodder 47% of fertilizers

Source: Andelsudvalget

1.

Table 1.6 – Value produced in 1985 for sub-sectors of the food sector

	DKK million
Slaughtering and meat preparation	37,050
Bacon factories and slaughterhouses	35,475
Poultry dressing factories	1,575
Dairy produce	21,225
Dairies	15,416
Cheese processing/ preserved milk product factories	5,075
Consumer milk factories	734
Other foods	32,260
Tinned vegetable and fruit factories	2,444
Fish processing	6,304
Oil production	2,100
Margarine factories	1,212
Fishmeal factories	1,721
Manufacture of flour, grains	1,741
Bread-making factories	1,007
Cake-making factories	2,160
Bakeries	3,072
Sugar refineries	2,955
Chocolate and confectionery factories	2,429
Potato flour manufacture	2,586
Feedstuff manufacture	2,523
Beverage production	6,224
Spirits and liqueurs	670
Breweries	5,554

Source: Nationalregnskabsstatistikken 1987

Table 1.7 – Size and relative composition of the food sector 1987

	Production value	Employment
Slaughtering/ meat production	37.7	35.2
Dairy production	23.0	12.3
Other foods	32.5	40.8
Beverages	6.8	11.7
	100.0	100.0

Source: Danmarks Statistik 1986 og Industristatistik 1986

Table 1.8 – Breakdown of companies according to the number of employees (%) 1986

No. of employees	Food sector	Industry
6-9	13	19
10-19	20	31
20-49	28	29
50-99	17	11
100-199	10	6
200-500	9	3
501-	3	1
No. of companies	860	6,505

Source: Industristatistikken 1986

Measured by Danish parameters, the Danish food sector is predominantly made up of large companies. 54% of all employees work in companies with 200 or more people. In comparison, the equivalent percentage is 42% for the sector in general. The slaughterhouses and breweries are worth noting in this respect.

In terms of turnover, the food sector is the most important manufacturing sector in Denmark. As shown, the food sector is clearly dominated by the dairy and slaughterhouse sectors. In addition, sugar, tinned vegetables and fruit, minced meat and chocolate and confectionery manufacture are of considerable importance. Thus, primary agricultural production is, to a large extent, the basis of the Danish food sector. As mentioned earlier, the present report is restricted by the conditions stated in the introduction.

The food sector in Denmark consists of a total of 860 companies (1986 figures) owned by 525 companies. The figures do, however, understate the concentration of ownership which is a characteristic feature of a number of sub-sectors (slaughterhouses, dairies, breweries).

The above table indicates a greater production concentration than in other sectors of industry. Thus, three major companies account for 28% of turnover and the 10 largest companies for 44%, whereas figures for industry in general are 9% and 16%. The above data are from 1986 and since then the concentration in the food sector has intensified. It is worth noting that since 1982 employment has shown a downward trend for all companies employing less than 500 people, whereas the opposite is the case for companies with over 500 employees. Compared to other OECD countries, there is a relatively high degree of concentration in the food sector, although the Danish food sector is still modest compared to international food sectors. During the period 1979–1987 productivity rose more significantly in the food sector than in other industries, on average 1.7% compared to 1.2% generally. Slaughterhouses, with their significant increase in employment, saw a somewhat higher productivity than found otherwise in the food sector.

1.3 Exports

The table shows that the meat and dairy sectors are the most significant with regard to manufacturing exports.

1.4 Profits within the food sector

If profits are made up of gross earnings, the following picture emerges for the food sector during the period 1979 to 1985.

1.5 The slaughterhouse sector

The Danish slaughterhouse sector comprises 132 companies with a total of 25,000 employees.

This sector has several important areas of which the bacon factories are by far the largest and most important, with a total of 17,000 employees distributed throughout five cooperative companies with 25 slaughterhouses. The second largest are the meat factories and canneries which account for a total of 6,000 employees in approximately 50 factories. The 24 cattle slaughterhouses and approximately 20 poultry dressing factories both employ approximately 1,700 people.

The sector is very heterogeneous; it includes a number of small private companies alongside very large groups. Danish Crown, for example, is not only one of the largest slaughterhouse companies but also one of the largest manufacturing companies in Denmark.

The Danish meat production sector dominates both exports, turnover and employment within the agricultural sector and is, thus, a key factor in Danish trade and industry. Total Danish meat exports are now well over DKK 20 billion and the sector represents one-third of all employment in the food sector and approximately 35% of turnover. The table below shows that the slaughterhouses are the main contributors to these figures.

The following discussion therefore concentrates on the pork sector which collectively represents:

- Denmark's largest export item
- 40% of agricultural exports
- 35% of food sector turnover
- 9% of total EC pork production
- 20% of world exports

The Danish cooperative slaughterhouses are the dominant single factor in the pork sector, accounting for approximately 93% of all pork supplies and 72% of cattle supplies through their ownership of cattle slaughterhouses.

1.5.1 The slaughterhouse structure in Denmark

Developments within the structure of the slaughterhouse sector have gradually reduced the very high number of slaughterhouses which were established as a result of the cooperative movement at the beginning of the century. This development has been characterized by mergers and the closing down of companies.

Table 1.14 shows that the process of restructuring has been very drastic within the pork sector. Compared to the structure in other countries, the Danish companies are fairly large. Today, Danish Crown is, for example, the largest slaughterhouse company in Northern Europe. Following the mergers, slaughtering takes place in fewer slaughterhouses; the former slaughterhouses have been converted to meat processing factories or closed down entirely.

Table 1.9 – Export of food and beverages (DKK billion) – Nominal prices

	1980	1987
Meat	15.9	18.3
Dairy produce	5.7	6.5
Fish, etc.	4.9	8.9
Grain, etc.	1.7	4.1
Fruit/vegetables	0.5	1.2
Confectionery	1.3	1.1
Coffee/tea	0.4	0.5
Feedstuff	1.5	1.2
Various food products	1.0	1.6
Beverages	0.8	1.3
Total food	34.0	45.3
Exports	103.0	158.7

Source: Danmarks Statistik. Danmarks vareindførsel og udførsel. Årgangene 1980, 1987

Table 1.10 – Rise in gross earnings in the food sector and selected sub-sectors 1979–19985 (%)

Food sector	123.2
Slaughterhouses and meat sector	166.6
Manufacture of dairy products	68.5
Coffee and tea production	96.3
Beverages sector	208.4
Bacon factories and slaughterhouses	165.1
Dairies	53.8
Bread-making factories	54.8
Other manufacturing companies	139.9

Source: Nationalregnskabsstatistikken 1987

Since it appears that the food sector experienced lower earnings during this period than the manufacturing sector in general, it is worth noting that the slaughterhouses and beverages sectors are considerably above average. The reasons were the extensive rationalization and concentration measures taken during this period.

Table 1.11 – Manufacturing value added and investment (net) in 1989 for companies employing six or more people (DKK million)

ISIC			Value Added	Investment
3111	Slaughterhouses and meat sector	1989	7,475	683
		1988	7,344	1,074
3112–19	Other food sectors	1989	17,281	2,089
312		1988	16,583	2,155
313	Beverages sector	1989	4,422	595
		1988	4,418	504

Source: Industristatistikken 1991

The Danish pork sector does not have long-term experience in the production of processed meats. Approximately 80% of exports can be classified as primary products which are either sold whole or in joints. Approximately 14% are processed goods, a further 13% are pure branded goods sold for direct consumption. Two companies are

Table 1.12

Exports (DKK million)	No. employed	% of employed in food, beverages & tobacco	% of turnover
Pork	16,226	29.2	31.6
Beef	3,397	4.0	4.0
Poultry		670	

Source: De Danske Landboforeninger, Statistik Nyt 89 nr. 3

Table 1.13 – Pig supplies to the individual slaughterhouses 1991

Slaughterhouse	Head	% Division
Danish Crown	7,135,526	43.7
Vestjyske	3,392,628	20.8
Steff-Houlberg	2,549,001	15.6
Royal Dane Quality	1,326,874	8.1
Syd	1,193,231	7.3
Thisted	695,605	4.3
Silkeborg	44,148	0.3
Skærbæk	5,328	-
Total	16,342,341	100.0

Source: Danske Slagterier, Statistics 1991 p. 10

Table 1.14 – Number of slaughterhouses

Companies	1962	1980	1991
Cooperative	62	18	5
Private	15	2	0
Total	77	20	5
Slaughter units			
Cooperative	62	34	25
Private	15	2	0
Total	77	36	25

Source: Danske Slagerier. Statistics 1991 p. 11

particularly dominant within the food processing sector, Tulip International and DAK. It should be noted that both these companies operate as limited companies with considerable capital contributions from institutional investors. Both companies are, however, jointly controlled by a number of cooperative slaughterhouses.

1.5.2 Level of technology

Based on a general assessment, and also in international terms, Danish cooperative slaughterhouses are technologically advanced. Within the carving and boning sections, the Da..ish slaughterhouses have a technological lead due to specially developed process technologies and the organization of the slaughtering process. In this connection the classification technology is all-important as it is the means by which it is possible to achieve a quality and sorting control, this being the significant factor for the meat processing sectors in Europe and Japan. The carving techniques used in Danish slaughterhouses likewise provide a great advantage. This high level of technology is the reason why the Danish pork sector has been able to set a number of technological standards. The possibility of using technological classification methods to determine meat content with great accuracy and, thus, supply "tailor-made" primary products to meet specific requirements is considered to be a decisive competitive advantage in a market which is continually increasing its demands in terms of the quality of primary produce. It should be noted that the majority of technological development originates from within the slaughtering sector. Slagteriernes Forskningsinsttitut (the Danish Slaughterhouse Research Institute) has played a decisive role in this development together with the Danish Meat Trade College's training and experimental slaughterhouse in Roskilde.

1.5.3 Supply of primary produce

The products from the Danish pork producers constitute an extensive, stable and efficient primary product base, especially the major technologically advanced pig farms. The slaughterhouses obtain their slaughter pigs from approximately 32,000 producers but 75% of production derives from only 6,000 livestock farms. These large, efficient farms are generally the highest earners and are the backbone of primary production.

1.5.4 The vertical structure of the pork sector

A detailed description of Danish slaughterhouses must necessarily include the first stage of the value chain, i.e. the interaction between pork production and the slaughterhouses. Because of the uniform high quality of their primary products the Danish slaughterhouses have had an historically strong position on the international markets. Competitive advantages have been created through targeted and long-term efforts in respect of primary products and processing.

Compared with other countries which do not work with vertical integration between the primary producers and the slaughterhouses, the Danish pork sector has created a unique interaction. Using direct information, fixed-term arrangements, a profit-sharing system amongst the producers in accordance with the number of pigs supplied by them and objective classification of the pigs, the Danish slaughterhouses are able to select animals that are best suited for processing and sale. At the same time, the pig producers can increase their earnings by increasing their share of the total value added created.

1.5.5 Product range

During the past 20 years we have experienced a clear shift in favour or pork which today is Denmark's most important export item.

1.5.6 Trade associations

To an outsider it may be difficult to analyse the network of companies, organizations and institutions which constitute the Danish pork trade. This trade is a direct extension of the cooperative system previously mentioned in a system which is unique to Denmark. The individual pork producers own the bacon factories which established the "Danske Slagterier" (the Danish Bacon and Meat Council). This association owns a number of subsidiaries and has considerable capital interests in a number of companies with links with Danish agriculture.

The work of the association is predominantly financed by means of the so-called "Pig Levy Fund" into which a production tax of DKK 9.0 per slaughter pig is paid. The capital in the fund is used to finance various common objectives with the overall objective of furthering sales of Danish pork. A considerable amount, moreover, is spent on research and development at the slaughterhouses research institute whose results are made available to all parties involved. In this connection, the joint efforts in respect of the implementation of advanced sorting and classification technologies in the trade deserve a special mention. In addition, considerable sums are spent on combating disease, veterinary and food matters, primary production breeding, etc. The association also endeavours to promote Danish sales in more than 100 countries to which Denmark exports its products. The political impact of this industrial organization is considerable, both at home and abroad.

1.5.7 Productivity and employment

Over a period of 20 years, productivity in bacon factories has soared and since 75% of the bacon factories' costs consist of payments for primary products, the economic advantages of increased profits in connection with processing are considerable. In comparison with other sectors, slaughterhouses employ relatively few white-collar workers, as much as 85% of the total workforce being blue-collar workers. The corresponding percentage for the rest of the food sector is 70%. Traditionally, Danish bacon factories have been dominated by male workers, 73% compared to 67% in the rest of the sector. The percentage of women is highest within the meat processing areas, particularly in such areas as delicatessen, packaging, cleaning and canteen services. The majority, approximately 80%, of the male workforce is unskilled. Over a period of ten years, the falling number of employees in bacon factories is due to general automation, for example internal transport, various processing methods, etc.

Table 1.15 – Total turnover in DKK million

	1972	1986	1988
Pork	3,824	13,387	13,650
Beef-veal	572	2,327	2,010
Processed products	1,483	4,966	4,867
Other	579	1,852	1,459
Total	6,458	22,532	21,986

Source: Forum for industriel udvikling, fig. 11

In spite of the reduced number of employees in direct production, more people are employed in bacon factories and in related processing activities than in 1968. The explanation is probably that the number of slaughter pigs has risen (11 million in 1968, 14 million in 1984 and 19 million in 1991). In addition, today, the amount of processing is also higher than previously. Finally, it should be noted that the automation of traditional carving methods is taking place at a slow rate within an otherwise increasingly technological production process. The result is a high level of specialization with few working operations for the individual employee.

1.6 The dairy sector

The dairy sector represents the second largest subsector within the food sector, accounting for 25% of total Danish agricultural exports, approximately 13% of food sector employees and almost 25% of turnover.

The structure of the sector has changed drastically since the post-war era; a systematic and consistent restructuring has resulted in the closure of approximately 1,000 dairies. Part of the restructuring was due to internal influences and general technological development introducing high technological processing equipment, but outside influences have also determined this development: changes resulting from technological shifts in other sectors, public intervention and, in particular, changed market conditions and competition. A number of EC regulations have played a major role in this respect.

Table 1.16 – Export value of dairy produce (incl. FEOGA)

DKK billion	1981	1987	1991
Butter	1.59	1.65	1.43
Cheese	3.58	4.71	6.00
Preserved milk, etc.	1.83	3.35	3.46
Total	7.00	9.71	10.89
Index	100	139	156

Source: Mejeristatistik. de danske mejeriers Fællesorganisation, 1992, p. 8

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Table 1.17 – European dairy sector concentration

Country	No. of dairies	% of milk produced
Belgium	6.9	20.5
Denmark	2	75.0
Germany	9	15.2
France	24	59.6
Ireland	6	57.5
Netherlands	6	74.5
United Kingdom	6	68.9

Source: Landsbrugsrådet 1987

There were 1,300 dairies in Denmark in 1960. By 1987 this figure had fallen to 67. The 1970s and 1980s, in particular, were marked by mergers in the sector. Today, the sector is dominated by two large companies, MD Foods and Kløvermælk, owning approximately 70% and approximately 25% of milk production, respectively. The remaining 5% is produced by 24 cooperatives and 26 privately owned dairies. In 1991, 92% of raw milk was, thus, produced by cooperative companies. The sector resembles the slaughterhouse sector in being clearly dominated by the cooperative movement. One of the most important prerequisites for the above mentioned reduction in the number of dairies is the development of refrigeration and packaging. This development has resulted in large-scale operational advantages which the dairies have cleverly utilized.

In parallel with the horizontal integration, a vertical integration has also taken place. Thus, approximately 12% of the wholesale price of milk pays for transport to the retail outlets. In 1979, MD Foods took the initiative by creating a national distribution system to minimize these costs. Kløvermælk has, likewise, established distribution depots, however, only for milk producers. The market needs products with a high degree of processing, the current product development this entails, combined with a number of technological factors, point towards one large Danish dairy company with few large- and medium-size companies and a number of small companies with niche production. An even higher degree of production specialization on fewer and larger factories may, in addition, be expected.

1.6.1 Production specialization

During the 1970s consumer milk production was concentrated in a few large dairies with a very high level of automation. Automation has been achieved through computerization and process control. This development will continue with the automation of tapping, taking and packing. Within the preserved milk products area, a similar development, introducing electronic monitoring systems, has taken place. Within butter production the development has been from traditional churning to continuous butter production, developing packaging equipment with increased capacity. The majority of butter production today takes place in large factories. Danish cheese production was formerly characterized by traditional batch production in cheese vats with a certain degree of automation in the subsequent pressing, salting, curing and packaging processes. Here, too, the development will be towards using the latest biotechnology to replace the cheese vat.

1.6.2 Employment in the dairy sector

In relation to the structural development of the dairy sector described above, a drastic increase in employment might be expected. A production shift from butter to cheese (more labour intensive, higher degree of processing) has, however, resulted in an unchanged employment level.

The number of white-collar workers employed in the dairies, approximately 16%, is stable. White-collar workers include a growing number of women, whereas the number of women employed as dairy workers is stable, approximately 20%. Skilled labour accounts for approximately one-third of all dairy employees. This workforce composition does not differ from that found in the slaughterhouses.

1.6.3 MD Foods

Recent developments in the dairy sector have been influenced by one all-dominant company, namely MD Foods. It is a unique example of how one company has been able to make its mark on an entire sector, which is why a more detailed description of this particular company seems relevant here.

A total turnover of DKK 13 billion makes MD Foods one of Denmark's largest companies. The company differs from other Danish companies in its clearly specialized and extremely targeted strategies with considerable thrust in its markets.

MD Foods is a good example of how a small country can build up an international group through optimum utilization of national conditions and prerequisites.

The group is owned by 13,000 members of a cattle farming cooperative society. They form the basis of primary production and the supplier network and, today, they own one of the world's largest and most technologically advanced dairy companies. This position has been achieved through systematic restructuring and buying policies so that today, MD Foods accounts for 70% of Danish milk production and 90% of butter and cheese exports.

1.6.4 Competition

On an international scale, MD Foods is one of the world's three largest dairy companies. However, MD Foods is special in that the company acts as an exporter on international markets. Therefore, MD Foods' primary competitors are not the other large international dairy companies, but rather

international food conglomerates, particularly groups like Unilever, Nestle, Kraft and Borden. These companies are all strongly represented on the dairy produce market. In comparison with these real competitors and by European standards, MD Foods is a medium-size company.

The products are standard products with price and uniformity being the most important competition parameters. Future MD Foods efforts will be directed towards operating as a sub-supplier for ready-prepared foods (e.g. cheese for Italian-style pizza).

Approximately half of all MD Foods products are sold as branded goods. In future, an increasing share of the company's products will be sold under major retail chain brands as it is anticipated that these will occupy a dominant position on the market for branded goods.

1.6.5 Degree of internationalization and strategy

Approximately half of all MD Foods sales are exports to its main markets in the United Kingdom, Germany and Iran (feta cheese). France, Italy and the Middle East are growing markets.

The strategy is to move from being a completely Danish dominated dairy company to building an international organization with the aim of achieving increased market shares abroad. This means building up sales and production companies in other countries, the Danish base of primary products being insufficient to continue the necessary expansion. This process is considered to be highly capital intensive, for which reason it will clearly have to be implemented by establishing limited companies and raising capital from other sources.

1.6.6 EC market regulations

The many EC market regulations to control total agricultural production and, at the same time, ensure fixed prices for the producers have, in practice, proved to cause heavy over-production of several products, including dairy products.

In the period from 1973 to 1980, approximately 200,000 dairy cattle, i.e. 15% of all stock but only 10% of milk production, were slaughtered in Denmark under the EC scheme of rewarding producers for reducing their dairy stock. The primary producers who made use of these schemes are, first and foremost, less efficient farms with the result that, in the period from 1973 to the mid-1980s, despite this reduction, milk production rose by approximately 15%. Milk production has fallen somewhat in subsequent years.

1.6.7 Use of raw milk

Whilst milk production has remained relatively stable for a long period, the use of milk in various dairy products has changed significantly.

Table 1.18 – Product profile. MD Foods' turnover shows the following distribution:

Consumer milk	25%
Cheese	50%
Butter	20%
Other	5%

The major part of all milk is used for making butter, 43% in 1986. The quantities of milk used for butter production have, however, decreased markedly; in 1960, 67% of milk was used in butter production. Increasing quantities are now used in cheese production; from 1960 to 1986 the quantity has doubled.

1.7 The beverages sector

Total Danish beer and mineral water production in 1989 was 8.7 million hectolitres and 2.1 million hectolitres respectively, corresponding to a total value of DKK 6.4 billion, not including excise duty and VAT (of which beer accounted for DKK 5 billion and mineral water DKK 1.4 billion). In 1990 beer exports reached DKK 1.2 billion whereas beer imports were DKK 18 million, the Danish consumers' interest in foreign-made beer being limited. An increase in beer imports was only measurable during the years 1965 and 1985 in connection with a number of industrial disputes. Total beer imports in 1990 amounted to approximately 27,000 hectolitres, corresponding to approximately 0.3% of total Danish beer consumption. It should be noted that a hidden import is taking place without being recorded in official statistics; this import is the so-called cross-border trade with consumers importing their own beer. This type of import is estimated to be 10% higher than stated in official figures.

Table 1.19 – Danish beer exports (1,000 hectolitres)

United Kingdom	59
Sweden	121
Belgium	183
Germany	997
France	110
Italy	357
Switzerland	37
USA	59
Greenland and the Faroe Islands	90
Other	290
Total	2 303

Source: Tal fra Bryggeriforeningen, 1992, p. 5

In addition to exports to approximately 120 countries, the branded "Carlsberg" and "Tuborg" products are brewed under licence by 47 breweries in 27 countries. Figures from these breweries were unobtainable.

Mineral water exports totalled DKK 120 million in 1989, whereas imports amounted to a total of DKK 53 million.

Danish beer is made of agricultural primary produce such as barley malt, raw grain and hops.

During brewing, all the ingredients are boiled in the same vessel, the yeast is added and beer is gradually brewed, forming inter alia alcohol in the process. The beer is then matured for between one to five months (different maturation time for different types) and, following maturation, is bottled and capped. After pasteurization the bottles are labelled and packed in crates of 12 or 30 bottles.

The taste of the beer varies from one brewery to another, depending on the quality and composition of the primary products used, maturation time, bottling and storage conditions after the beer has left the brewery.

1.7.1 Production technology

In Denmark, beer is produced using modern production technologies in various ways. The capacity of the bottling machines, thus, differs from around 10,000 bottles per hour to 70,000 to 80,000 bottles per hour. Putting bottles in crates is mechanized work in most breweries although a few still carry this out manually.

The technologically most advanced brewery is the Carlsberg Group's Fredericia subsidiary, where production is carried out utilising the most advanced principles of beer production including electronic control and monitoring of the production processes. In comparison with traditional production processes, a relatively limited number of employees are involved.

1.7.2 Product range

The total range of beers on the Danish market comprises approximately 200 different brands (of which 25 are trade marks) and around 300 different types of mineral water.

Danish beer is a typical brand product with each brewery using it own production processes and special names or brands. This brand effect is strongly related to consumer expectations of quality and preference for local brands with different tastes.

Beer is divided into four classes according to the alcohol and gravity of the beer before fermentation, in accordance with current exise duty regulations.

1.7.3 Excise duty

Beer has always been, traditionally, heavily taxed in Denmark. Thus, approximately half the price paid by Danish consumers for ordinary branded beer is VAT and a special beer tax on beer sales.

Table 1.20 – Danish beer domestic market sales 1990

	Alcohol %	Excise duty	Volume	
Category 1[1] (lager)	4.2–4.6	DKK 1.37	5506	(86%)
Category A (luxury)	5.8	DKK 1.78	329	(5%)
Category B (luxury)	7.0–8.0	DKK 2.15	276	(4%)
"Hvidtøl"[2] (not liable to excise duty) Light beer, etc.	0	0	275	(5%)
Total			6386	(100%)

[1] Category of excise duty on beer, etc.
[2] Danish type of ale which, by Danish definition, may be either top or bottom fermented.

Source: Tal fra Bryggeriforeningen, 1992, p. 3

Note: Danish consumption of beer is mainly Category 1 beer (86%) (lager). The consumption of beer allocated in the above categories shows only limited variation from one year to another.

Table 1.21 – Excise duty on beer and consumption in EC and Nordic countries (best selling beer)

EC Countries	DKK per 33 cl	Consumption per capita 1990
Ireland	232	90
Denmark	137	127
United Kingdom	136	110
Italy	57	23
Netherlands	54	90
Belgium	51	121
Portugal	26	64
Greece	16	41
Germany	18	143
Luxembourg	14	117
Spain	10	72
France	7	42
Nordic countries		
Norway	340	52
Finland	231	83
Sweden	95	60

Source: Bryggeriforenigen

The fixed tax per bottle means that beer, with a low wholesale price, is taxed relatively higher than beer with a higher wholesale price.

Table 1.21 indicates very different structures of excise duty and tradition in Europe with the Nordic countries clearly occupying the most heavily taxed position. It should be noted that the level of excise duty does not appear to be the determining factor for beer consumption. Small breweries are granted some excise duty relief; however, this is so slight that it has little importance competition-wise. Almost half of the easing of

excise duty is, thus, granted to breweries within the four largest groups (which together account for over 90% of all beer sales). Mineral water production is similarly liable to excise duty. In 1985 a new scheme was introduced granting small mineral water factories excise duty allowances, corresponding, in principle, to that allowed for beer.

1.7.4 Distribution channels

The distribution of beer and mineral water from the breweries and mineral water factories is mainly handled by beer depots and roundsmen.

The beer depots handle the breweries' external sales, comprising 80 to 90% of total turnover, and are run by depot owners who are independent of the breweries. The geographic limitations of the depot districts are determined by the breweries, who invite tenders. Within a specific district the depot owner has the sole sales rights, for the products of the brewery in question, to shops and restaurants. The depots are supplied from the breweries or from central distribution stocks. Some depots, however, collect their supplies direct from the brewery.

In contrast to the depot system, roundsmen are employed by the breweries and handle sales to shops and restaurants in a particular district. A limited part of the breweries' sales (6%) is distributed in very large quantities from the breweries to central stocks belonging to retail chains. From this point the retail chain concerned takes over distribution to the individual retail shops.

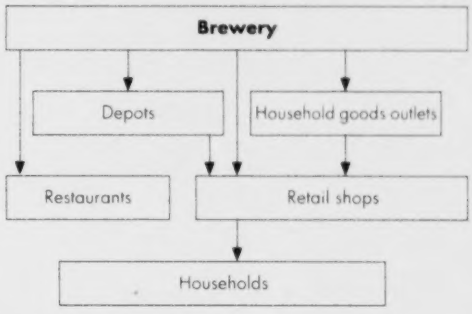
This survey indicates that restaurants constitute the principal customer group. Retail shops account for almost half, of which household goods outlets form the largest group. Approximately half of all domestic sales take place through household goods outlets and the combined retail sector accounts for approximately 70% of all beer sales.

1.7.5 Beer and mineral water consumption

Throughout the 1980s and until 1992, beer consumption was stagnant, but in comparison with 1955 figures, consumption almost tripled. In 1989 consumption reached 6.4 million hectolitres (equal to approximately 127 litres per capita).

As previously described, foreign beer imports are very modest. The reasons for this are, first and foremost, the Danish consumers' preference for Danish brewed beer, a preference with historical roots. Furthermore, the Danish Law prohibiting canned beer, and the environmental rules stipulating a returnable bottles system cannot be disregarded. In addition, it must be assumed that high transportation costs and the risk of deteriorating quality resulting from long transportation play a decisive role. Finally, the special Danish distribution system must be considered, a system which ensures efficient beer distribution. By far the greatest part of beer sales is distributed in bottles (98%).

Figure 1 – Distribution channels for beer and mineral water



In quantitative terms, mineral water consumption is only half that of beer and in value terms it accounts for only a fourth of beer consumption (cf. Bryggerbranchen. Monopoltilsynet. 1978, p. 40). Beer and mineral water consumption is subject to considerable seasonal variations. Consumption is relatively higher during the summer months and in December for both products. These seasonal fluctuations make heavy demands on brewery logistics, since they have to ensure sufficient capacity to be able to handle peak periods. Moreover, for quality and handling capacity reasons, there is an upper limit to the size of stock that can be built up outside peak periods.

1.7.6 The brewery structure in Denmark

Development in the Danish brewery sector during the last 30 to 40 years has been characterized by a heavy reduction in the number of production units and concentration of production in a few, relatively large, breweries and mineral water factories. The breweries are organized in limited companies with city-based capital investment.

Table 1.22 – Breakdown of brewery customers by category (1984)

	No. of customers	Distribution (%)
Households	6,700	25
Kiosks, etc.	5,700	21
Restaurants	9,500	36
Institutions	4,900	18
Total	26,800	100

Source: Bryggeribranchen. Mnopoltilsynet. Copenhagen 1987, p. 31

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In 1948 there were 129 breweries in Denmark, in 1987 this figure had fallen to 23 breweries and 15 mineral water factories owned by 12 companies. In 1984 a total of 9,000 people were employed in the sector and, by 1992, this had fallen to 5,177 employees.

The number of employees in Danish breweries and mineral water factories has been reduced by half over a ten-year period.

It should be noted that in 1990–1991 the Carlsberg Group had a market share of 75% of all beer produced in Denmark. The survey shows that Carlsberg is by far the largest brewery company in Denmark. In 1975 its market share was approximately 80%; this share has declined in recent years, falling to 70% in 1985 due to a major labour dispute that year. The 75% market share seems to have stabilized. Faxe A/S has, for a number of years, held a market share of 8–10%. Together with the three other large brewery companies, Jyske Bryggerier A/S, Albani Bryggerier A/S and Harboes Bryggeri A/S, these four companies in 1985 accounted for a market share of approximately 25%, a share which is estimated to have fallen to 20% in 1990.

In 1992, through a merger between FAXE Bryggeri A/S and Jyske Bryggerier A/S (formed by Ceres and Thor), the second largest Danish brewery group was established under the name "Bryggerigruppen A/S". This merger took place in order to adapt production and sales to increased national and international competition. In 1992 over 60% of Bryggerigruppen's production was exported.

The Bryggerigruppen A/S comprised the following breweries in 1992:

FAXE Bryggerierne	Fakse
Ceres Bryggerierne	Århus
Ceres Bryggerierne	Horsens
Horsens NyMalteri	Horsens
Thor Bryggerierne	Randers
Nunk Imeq	Greenland (24%)
Robert Chain	United Kingdom (100%)

plus the FAXE Getränke Vertrieb (Germany, 100%) and Centre Nordique d'Alimentation (France, 100%) companies.

Both the Carlsberg Group and Bryggerigruppen A/S have considerable sales throughout the country and may, thus, be called nationwide breweries.

In 1985 the other small breweries had market shares of approximately 5% or less. They are predominantly local breweries with sales concentrated on their own towns and surrounding areas.

Table 1.23 – Breakdown of distribution of the beer market amongst the breweries 1985 (%)

	1985
Carlsberg Group	69.5
Jyske Bryggerier A/S Faxe Bryggeri A/S Albani Bryggerier A/S	28.8
Harboes Bryggerier A/S Other breweries	4.7
Total	100.0

Source: Bryggeribranchen. Monopoltilsynet 1987, p. 42

Table 23a – Breakdown of number of Danish brewery and mineral water factory employees according to job 1992

Brewery hands	2,511
Distribution employees	327
Metal workers	344
Electricians	113
Other skilled employees	53
Salaried employees	1,829
Total	5,177

Source: Restaurations- og Bryggeriarbejder Forbundet, 1992

Table 1.24 – Breakdown of market share of mineral water according to factory 1985 (%)

	1985
Carlsberg Group	20
A/S Dadeko	22
Faxe Bryggeri A/S	14
Jyske Bryggerier, Albani Bryggerier A/S Wiibroes Bryggeri A/S, Harboes Bryggerier A/S	21
Other	23

Source: Byggeribranchen. Monopoltilsynet 1987 p. 45

However, sales of branded beers for national retail chains should be added for some breweries. In the local markets the following brands of beer are typically sold: beer from the Carlsberg Group, from Bryggerigruppen A/S and from one or two local breweries.

Table 1.24 shows that breweries with relatively large beer sales market shares also have considerable mineral water sales. The Carlsberg Group has traditionally had 30% (there were several labour disputes in the group in 1985), Faxe, 14 to 15% and four other relatively large breweries together hold approximately 22%. Dadeko, who produce Coca Cola products, has approximately 22% and is, thus, the only major mineral water factory outside the brewery sector.

Since 1988 mineral water sales have increased by approximately 5% per year.

1.7.7 Trade agreements and associations

Bryggeriforeningen, the Danish Brewers' Association, is partly an employers' association and partly a trade organization, with considerable influence on competition. The association members account for approximately 85 to 90% of total beer sales and the Carlsberg Group has more than half the votes at the association's general meetings. Bryggeriforeningen has entered into the so-called contracting parties' agreement which controls competitive conditions in Denmark. This agreement determines minimum prices for all types of beer in all forms of packaging and it only involves the breweries and depot sales lorries. Discounts of any kind are forbidden. In addition, the agreement regulates relations, and determines payments to the depot owners and between the breweries and the depots with which they have entered into sole agency agreements. The depot owners are not permitted to trade in beer from breweries which are not part of the agreement. Furthermore, the agreement stipulates advertising rules. Bryggerigruppen A/S is also an association member.

Since 1977 a certain amount of liberalization in terms of the agreement has occurred, for example making sales of branded beer to retail chains possible. The branded beer is then sold at a lower price than otherwise.

The international position of the brewery sector

During recent years competition on the international beer market has intensified and substantial structural changes characterized by take-overs, mergers and alliances between companies, resulting from strategic considerations, have taken place.

Carlsberg A/S

No other Danish brewery or brewery company is as heavily involved in international agreements and activities as Carlsberg A/S. In 1992 the Carlsberg Group sold three times as much beer abroad as was produced for the domestic market.

The Carlsberg Group is amongst the largest international companies on the European market and is represented throughout the world.

- In 1991, with a local investment group, the Carlsberg Group purchased a majority holding in Univer-Uniao Cervejeria SA, Portugal's largest brewery.

- In August 1991, Carlsberg A/S transferred a 60% holding to the Spanish Unión Cerveza to Spain's largest brewery, La Cruz de Campo, owned by Guinness plc (Cruz Campo).

- At the same time as this transfer, Carlsberg A/S acquired 10% of the shares of Cruz de Campo from Guinness, with the possibility of a future increase. The Cruz de Campo brewery now carries out brewing and sales of Carlsberg's brands in Spain.

- On the United Kingdom market, in 1991, Carlsberg entered into an agreement with Courage Ltd (the United Kingdom's second largest brewery group) on the continuance of the 20 year cooperation between Carlsberg and the Grand Metropolitan Group, now taken over by Courage Ltd.

- In addition, Carlsberg has entered into an agreement with Allied Lyons plc, one of the large EC brewery companies, regarding a merger of the two parties' brewery activities in order to form a new company, Carlsberg-Tetley plc, of which each of the parties will own half. If this merger is approved by the EEC Commission and the British authorities it could come into force before the end of 1992. The merger will also mean that the company will become one of the three largest brewery groups in the United Kingdom.

- Carlsberg A/S has strengthened its global standing through the establishment of partnerships, cooperation agreements, the construction or supply of turnkey breweries or by brewery take-overs.

Bryggerigruppen A/S

With the purchase of the Robert Cain brewery in Liverpool, Bryggerigruppen A/S has improved its position on the United Kingdom market. The company has also entered into an agreement with the Guinness Brewery in Grenada regarding brewing and bottling of its Vita Malt product. In addition, various Bryggerigruppen A/S international sales companies have made agreements with trading companies on the sale of Bryggerigruppen products. Two-thirds of Bryggerigruppen's earnings are derived from the export of FAXE and Ceres beer to approximately 50 countries. The main exports, however, are to five countries: Germany, Sweden, Italy, the United Kingdom and the Caribbean.

Concerning shares and influence, Bryggerigruppen A/S is overshadowed by Carlsberg A/S, thus, sales policy and strategy plus intensified export market competition will determine how Bryggerigruppen faces the new century.

Harboe

As a result of Harboe Bryggeri's acquisitions abroad it can now be regarded as a major brewery concern.

Harboe has established itself in the former German Democratic Republic with a bottling

plant in Malchin and a brewery in Dargun. In addition, Harboe has purchased a 55% holding in A/S Viru Olu, the third largest brewery in the United Kingdom and plans to export from A/S Viru Olu to Russia.

Harboe's position in Eastern Europe is based on the success and earnings it has made on the discount beer/mineral water market in Denmark and is entirely dependent on the future selling policy of Carlsberg A/S on that particular market.

2. MARKET ENVIRONMENT AND SOCIAL CONTEXT

There is no legal requirement for continuing training under Danish law. Over the years a tradition has developed with regard to initial and continuing training that is solely based on voluntary agreements between the management and the workforce.

The main principle in all vocational training is that the State makes resources available in its budget. There is, typically, a framework of acts under which the two sides complete the details.

With regard to continuing training (e.g. the AMU system – the Danish system of labour market training courses) the State lays down certain requirements for the establishment of trade specific committees for further training by the individual trades who may then apply for funds. Certain trades are obviously better than others at doing this. The general principle is that the committees must have equal representation with a view to achieving complete agreement between management and labour. The individual trade specific committees for further training identify the scope of the courses based on well established relations with companies within the sector.

Against this background, the individual company is responsible for keeping itself informed of general developments which might be considered to exert an influence on the company's continuing training activities.

Commensurate with Western European consumers' generally increasing level of wealth, the Danish food sector has seen an increasing demand for high quality products. Moreover, Danish companies are increasingly facing demands from both European commercial and processing companies to establish quality control systems in accordance with internationally accredited standards. There are further examples of consumer demands relating to cleaner, healthier and more environmentally-friendly products. Companies able to keep up with the times and willing to meet these demands will naturally experience a more significant growth in demand. Against this background, if an individual company considers that the solution to the problem might be additional training for various groups of employees, it has to take the initiative and organize the training and, if necessary, obtain and pay for assistance from the public AMU system or vocational schools. Companies may also choose to use privately run courses.

This section, therefore, describes the general development trends which the Danish food sector must meet, with particular emphasis on the slaughterhouse and dairy sectors. In addition, an attempt is made to identify and discuss areas particularly relevant for continuing vocational training.

2.1 The international challenge to the Danish food sector

It is necessary to include international demands on future food production in order to understand the potential for the Danish food sector as Denmark's most important export trade.

Naturally, this subject has been of great interest to researchers and as a result a number of reports and analyses have been produced aimed at providing an overview of the opportunities and threats facing the Danish food sector.

The following picture of the state of the sector emerges:

2.1.1 Trends in society

Internationalization is global and is rapidly increasing. It comprises capital, technology, consumption and attitudes. Europe is getting smaller and the Danish "home market" is therefore, growing, particularly so as a result of the Single European Market. The starting point, however, is that Denmark has to recognize its position as a sales district in the northern part of Europe, with a market share of approximately 2%.

Internationalization, and in particular the Single Market, also result in keener competition in the Danish export markets as well as in the Danish home market. Even a large Danish food company appears small in the Single Market.

The common denominator for development is the increasingly strong position of the consumer. The ability to identify and satisfy the changing habits and needs of the consumer, and to convert these into food production will be the decisive parameter in competition. This makes considerable demands on investment in product development and sales, and thus on capital. More than ever the Danish food sector needs strengthening through concentration of capital, sales, research, training and product specialization.

2.1.2 Production, trade and demands

The development can be characterized as follows:

- A slackening growth in world foodstuffs trade. Between 1980 and 1987 the total world trade index rose from 100 to 120 whereas the agricultural produce trade index only rose to 108. Within the food sector there will, however, be large differences between products, i.e. convenience and highly processed, perishable foods showing marked increases and more traditional foods falling behind.
- International growth rates for meat production have fallen from 1.2% in the first half of the 1980s to around 0.9% in the second half of the decade. The UN predicts correspondingly low growth rates in most other food categories.

- There is a trend towards over-production of primary agricultural products, particularly in Europe and the USA. In the EC the supply rate for products such as grain, pork, beef, butter, cheese, sugar, vegetables, is very high. The ageing population is, however, expected to spend relatively more money on food and, in addition, to be wealthier than previous pensioners. Furthermore, they will demand quality and specialization.
- A stagnation is food consumption. The rise in demand is dependent on population increase. Two trends are now emerging: the population in Europe, as well as in the USA, is decreasing; the population is ageing, which is assumed to have considerable influence on the quantity, as well as the nature, of future consumption.

International market developments, therefore, demonstrate that competition is increasingly about directing efforts to meet new demands on a market which is generally stagnating but coupled with growth in certain specific sectors. The ability to develop new products and implement goal-oriented activities will be important.

2.1.3 Consumption patterns

The shift in tastes and eating habits throughout the Western World is an important one which, again, underlines the need for constant product development, product adaptation and the development of new distribution networks. The following trends should be noted:

- Healthier foods (to satisfy "green" trend, ethics in animal husbandry, etc.).
- A higher general level of quality for foods.
- A higher degree of processing; food preparation and consumption is simpler and easier.
- Increased demands for sensory attraction and appeal when buying and consuming food.
- More people eating out or dining together at the expense of the one-family meal.

The change in eating habits will, perhaps, serve as sufficient compensation for the general stagnation in the overall food market if the food sector is strongly committed to following market developments and consumer behaviour patterns and permits these factors to increasingly influence product development and primary production.

2.1.4 Food sector concentration

The highest number of mergers has taken place in the food and chemical sectors. A marked concentration tendency is, therefore, apparent, especially amongst the larger companies. This development began in the early 1980s and will probably continue.

The majority of take-overs in the meat and dairy sectors are made with a view to strengthening the company's position within the primary skill sector, i.e. at the same processing level (typically as horizontal integration). Other sectors endeavour, through take-overs, to achieve more diversity within their range of foodstuffs. This development can, thus, be expected to continue internationally, with still more cross-border take-overs and investments, in order to increase the company's visibility (in sales outlets) to the consumer.

2.1.5 Outlet concentration

European retailers have commenced a similar process of restructuring with the same end in mind as the food company groups. Their aim is to create larger units through take-overs and concentraton in order to achieve maximum advantage from large-scale operations.

Initially, as in the food sector, the tendency is for concentrations to be national with the second stage being international. Thus, there is every reason to assume that, in future, retail chains will gain considerably more influence on the food market than they have at present. Most chains will develop a range of own-brands as a competitive tool to identify the retailer in the mind of the consumer. It can, therefore, be expected that in future it will be far more difficult for the food sector to place its own brands on retail chain shelves. This development is already apparent with major retail chains taking the offensive and making demands for production in accordance with precisely defined product standards. Topics under discussion are shelf-life, appearance, consistency, etc. The risk for the producers is that even minor deviations will be a direct reason for the removal of their products from the shelves. The chains themselves are currently under pressure from other distribution networks, viz the habit of eating out; a development which is expected to intensify towards the turn of the century.

2.1.6 Technology

Four particular technological trends will mark food sector production process development:

- Larger production units are necessary to reap all the benefits of advanced, expensive, production equipment.
- New preservation methods/packaging to prolong the shelf life of highly processed, perishable foods, irradiation, aseptic and controlled atmosphere.
- Even keener competitive conditions will force shops and companies to considerably reduce their storage expenses. As a consequence the sector has to adjust itself to smaller, less frequent deliveries according to the just-in-time principle.
- With regard to technological production development, new developments will generally spread so rapidly amongst the companies that new technology alone will not be a sufficiently strong competition parameter.

The general development trends described above for the Danish food sector can be summarized as follows:

- Food production and sales will, in future, be far more demanding and much more advanced, whether primary products or finished goods are produced.
- Competition will concentrate, inter alia, on advanced research (biotechnology), continued product development and efficient, international marketing and market operations, a development requiring large, international units and ample capital.

2.2 Discussion

Future strategy decisions and continuing training needs, particularly in relation to general competition development trends, based on the above descriptions of the dairy, slaughterhouse and brewery sectors, will be discussed below:

A number of common denominators have been identified for the three sectors, especially with regard to structural adaptation, market strategies, process technology development, ownership and employment. The discussion, therefore, aims to encompass the subjects which are generally applicable to all sectors and sector specific matters will only be rarely addressed.

2.2.1 Strategy

Strategic opportunities for the Danish food sector, in particular the slaughterhouse and dairy sectors, have been the subject of intense debate in Denmark during the last two years. Against the background of these discussions two directions seem to emerge:

- The first is based on staking everything on the development of highly processed, perishable products or products with longer shelf life, i.e. finished or branded goods, because it is anticipated that demand will rise more and value is highest in this market.
- The second aims to strengthen the role as a supplier of primary products and standardized goods as ingredients for further processing in the food sector.

It appears that these two sectors have chosen a double strategy. The slaughterhouses and dairies are, thus, still successfully pursuing their sub-supplier strategy whereas the processing strategies have not yet been fully defined.

2.2.2 Sub-supplier strategy

The demands made in relation to general development trends in both the slaughterhouse and dairy sectors are concentrated on primary products which must, of necessity, be seen as an advanced product and not just bulk commodities. These demands are for uniform, accurate quality, bulk quantities, high security of supplies and competitive prices, all demands which the slaughterhouses and dairies are well equipped to meet, since they are areas in which excellent skills and know-how have been built up over the years.

By staking everything on primary products and standardized goods of a high hygienic standard and meeting very detailed specifications, the two sectors will be able to maintain their favourable international image as important sub-suppliers to large international food companies. The on-going restructuring process must be continued in order for Danish companies to appear as attractive business partners for large foreign companies. This strategy means that Danish companies will not have to use capital, which is not readily available in the sector, to launch extensive, capital intensive marketing campaigns.

2.2.3 Primary production

Financially sound and efficient primary producers are essential for this strategy to succeed since it is the individual farms who will have to meet the increasing demands on the quality of primary produce. The ability of the primary producers to develop their operations and efficiency will have a decisive influence on product quality and price.

It is, therefore, a condition of success for this strategy that even closer and more integrated relations between primary production and the processing bodies are established. It could be said that the primary producer, by his choice of the sub-supplier strategy, will be placed in a key position with regard to the development of the entire Danish food sector. Demands on the primary producers' earnings and investment will intensify, indicating that the on-going restructuring of the agricultural sector will continue. This means that production will be concentrated on even fewer farms. If, for example, too many inefficient primary producers are still making too high demands on the price of primary produce and supplementary payments from the slaughterhouses, the capital needed for the sector's growth will not materialize and the strategy will fail.

Biotechnological possibilities related to the quality of primary products are an interesting area of development where contacts already made with publicly financed research and development within the sector's own research institutes will play an important role, particularly in areas such as genetic engineering, fermentation, enzyme technology, etc.

2.2.4 Production organization

The current concentration, merger and take-over trend in the sector, particularly in the slaughterhouse, dairy and brewery sub-sectors, will continue, first at national and later at international level. The current automation and industrialization of some manual work will accelerate; this was, for example, apparent when the Carlsberg Group transferred most of its beer production from the out-of-date Tuborg brewery in Copenhagen to the highly technologically advanced Fredericia brewery. All sectors will benefit from the use of the latest information technology; classification and sorting

technologies in the slaughterhouse sector will have a decisive effect. Advanced CIM systems (Computer Integrated Manufacturing) with automatic process control and checking, linked and controlled by neutral networks, will be introduced in the future.

2.2.5 Training requirements

In order to support the food sector's chosen strategy it will be necessary to improve a number of central skills which are associated with a number of requirements both within and outside the sector.

The chosen strategic course, which aims to establish a customer-supplier relationship with foreign food companies by providing a high level of market readiness regarding quality, taste, appearance, packaging, etc. of primary products, requires the Danish food sector's product development efforts to be strengthened. A key qualification for this is that product development is market-oriented, i.e. a high degree of knowledge and insight into the decisive sales arguments of the various markets.

Furthermore, the strategy requires the improvement of a number of commercial skills, for example languages, selling, marketing, intercultural activities.

The Danish food sector, apart from established sales organizations, has, for historical reasons, been characterized by technical and craft skills in all areas. The commercial area has, thus, been weak. This skill area will need to be strengthened and continuing training initiatives integrating existing technical/vocational qualifications with a number of commercial qualifications will form an important strategic development potential for the food sector.

With regard to production techniques, the automation of a number of labour intensive jobs will continue. Advanced process and monitoring systems will reduce manual work. On the basis of current developments a shift in skills towards a high degree of process understanding is detected.

Increasing demands for continuing training can be expected in connection with the introduction of new production techniques. This activity will increasingly be undertaken by the equipment suppliers as part of the contract. In general, high technology production equipment will make a number of demands, of a more hybrid nature, on workforce skills.

With the introduction of new production technology, companies will have to decide between retaining and training their existing workforce or recruiting new categories of employees with the necessary skills. The Danish slaughterhouses' establishment of the so-called "male pig equipment" involving an entirely new employee group, laboratory assistants, is an example of the latter. The large continuing training programme arranged by the Danish Meat Trade College at Roskilde, a joint project for Danish slaughterhouses in connection with the introduction of the so-called classification centres in all slaughterhouses, is an example of the former. The target group was an existing group of skilled employees who, through training, were able to operate the complicated equipment.

The training cut across existing demarcation lines and included subjects such as computer techniques, repair and maintenance, control and supervision, hydraulics, pneumatics, process control, etc. The target group for this training programme were electricians and mechanics who, having completed training, are qualified to operate the equipment. It is reasonable to assume that, in future, there will be a number of continuing training programmes in relation to new technological production equipment where training will have to cut across existing demarcation lines and provide trainees with a basic overall understanding of the process flow.

The optimization of quality control will play a decisive role in the competitiveness of the Danish food sector's sub-supplier strategy with its extremely high requirements for primary product specification, quality and just-in-time deliveries. ISO certification will, in the near future, be the norm for the survival of food companies. As mentioned above, there is a close link between primary production and the processing company. In this connection it will be necessary for the two sides to carry out joint continuing training leading towards ISO certification for both parties. It is anticipated that quality control activities will be a dominant feature of continuing training. In this connection reference is made to the case study describing and analyzing Steff-Houlberg's quality development programme as a model programme for the entire Danish meat sector. The study concentrates particularly on the transfer value of this continuing training activity.

EC Directives prescribing precise procedures for food production, handling, transport, etc., are currently being followed up by national Danish legislation. They make heavy demands on the food sector's talent for adjustment and innovative thinking. Due to the great number of these, this report will only focus on the most central aspects. A number of Directives have been passed which prescribe the principle of cleaner production technology. In practice this means that demands will be made on companies to use the cleanest and most recyclable materials. The breweries are, for instance, preoccupied with the issue of whether it will be possible to maintain the Danish bottle deposit and return system in accordance with the new regulations. Another example are the new

rules relating to food hygiene which, in a number of cases, tighten existing rules on hygiene regarding the production and handling of food.

The Danish interpretation of these regulations has resulted in the demand on all food manufacturers and the retail trade for extensive internal control of the established hygiene system. The establishment of an efficient system of internal control in the entire food sector, and adjacent areas, will require extensive efforts regarding continuing training and schemes have already been initiated in this respect. Similar examples will, no doubt, result in increased demands on manufacturers as part of the established quality control systems and just-in-time principle.

As previously mentioned, there are no direct legal requirements in Denmark regarding the establishment of company continuing training programmes. The passing of a number of EC Directives, subsequently followed by national legislation, means that a new Danish practice in this field must be expected in future. Today responsibility lies solely with the individual company.

3. EMPLOYMENT

1.

Between 1987 and 1989 the Danish food sector experienced a more significant fall in employment than other sectors; approximately 9% compared to 4% in other sectors.

The employment situation in the country, as a whole, has developed unsatisfactorily over a 15 year period with approximately 9% of the workforce unemployed. This trend has increased slightly in recent years. However, it should be noted that overall more people are employed today than 15 years ago. This apparent paradox can be explained by the continual increase in the number of women in the labour market, especially the public labour market. In addition, during this period new jobs have been created in new sectors, primarily the service sector, whereas nearly all traditional sectors have declined.

In both the slaughterhouse and dairy sectors employment during the period fell by 7% and in the brewery sector there was a significant fall of around 27%. With regard to white-collar workers, in the slaughterhouse sector there was a marked fall of 14%, whereas in the dairy sector there was an increase of some 20%; in the breweries the number fell by 4%. The reason for this fall is primarily found in the previously mentioned restructuring process experienced by all three sectors. The objective of the merger and acquisition strategy has mainly been the closure of a number of small and non-competitive production factories in order to establish bigger, more profitable units.

The period has also been characterized by rationalization and the introduction of work process technology, especially in labour intensive processes. Productivity and profits have increased, in general, for all three sectors but with fewer production employees. This trend is expected to continue in years to come.

Overall, the same picture applies to both the dairy and brewery sectors regarding the composition of the workforce and distribution by gender. However, dairies employ more white-collar workers (21% of the workforce) compared to slaughterhouses (13% of the workforce). Slaughterhouses also have fewer female employees (18% of the workforce) compared to dairies and breweries (24% and 20% respectively).

3.1 Food sector employees

A recent major study on manpower in the food sector (The Food, Beverages and Tobacco Sector and Staff Planning, Ålborg University 1987) tried to identify general development trends in respect of manpower and planning in the food sector.

The heterogeneity of the sector has a considerable influence on the individual company's options in terms of flexibility. The data show a close connection between working conditions in the individual company and the amount of multi-skilling. The trend is towards highest flexibility in the largest companies in the sector. Temporary flexibility is extensively used; this applies in particular to overtime but also to shift work and unsocial working hours. The extensive use of temporary flexibility is, to a certain extent, connected to the food sectors' relatively capital intensive production equipment, which is typical of the process sectors and should not be left unused for lengthy periods of time.

The study found a relatively high degree of specialization in the flexibility of functions within the food sector and highlights the piece-rate system in slaughterhouses as an illustration of this point. There is a similar trend in companies with a high level of technology where employees' skills are often connected to the performance of specific, limited jobs. Intensive flexibility is closely connected to the use of the piece-rate system, particularly in slaughterhouses. The study summarizes the results and concludes that, with regard to manpower planning, the Danish food sector typically operates within a short time span which is, however, longer in terms of training and skill acquisition in general. Furthermore, the study stresses another characteristic feature that food companies have, to a great extent, decentralized their manpower planning so that, typically, an individual company makes an autonomous choice on the basis of centrally decided production plans.

The food sector has a relatively high level of unionization (85%). The national Union of Food and Allied Workers (NNF) organizes both skilled and unskilled employees and, according to the

Table 3.1 – Breakdown of number of bacon factory employees (31,111) November 1989

Total number of white-collar workers		1,840
full-time		1,597
of these:	women:	456
	men:	1,141
part-time		154
of these:	women:	124
	men:	30
apprentices:		89
of these:	women:	41
	men:	48
Total number of blue-collar workers		11,868
full-time		11,001
of these:	women:	1,995
	men:	9,006
part-time		254
of these:	women:	193
	men:	61
apprentices		613
of these:	women:	153
	men:	460

Source: Industristatistikken 1991, p. 72

study, the employees are included, in various ways, in manpower planning.

As previously mentioned, qualifications in the food sector are, to a large extent, obtained through the interaction of a number of training institutions; this is particularly true of the meat and dairy sectors who both use national specialization schools. Skilled and unskilled employees in the remainder of the food sector are not offered the same opportunities for systematically arranged continuing vocational training. With regard to employees, in general, the food sector is characterized by an economic strategy aimed at motivation in order to increase job performance. For example, the link between the piece-rate system, work rate and remuneration.

Another result of this economic strategy is that, when there is a need to increase production, overtime and other forms of temporary flexibility are extensively used. However, in slack periods lay-offs are often the result.

3.2 Future recruitment trends/ discussion

Assuming that the food sector (represented here by the slaughterhouse, dairy and brewery sub-sectors) consistently follow the sub-supplier strategy, this will result in the following picture of future recruitment requirements for the sector:

The reduction of employees caused by current automation, company mergers and increased use of information technology will continue. This will render many middle management positions superfluous.

Another trend, in the opposite direction, will however, make itself felt as the increased use of information technology, automation with electronic production control, new management principles, will necessitate a middle management group with far "broader" skills, skills that are far more related to knowledge. This will involve, for instance, the ability to manage and control complex production technologies and to undertake continuous development of both employees and organizational structures. This type of skill will be critical for slaughterhouses, dairies and breweries in the future. Traditionally these sectors have, to a large extent, recruited their middle, and frequently also top, management from the sector itself, i.e. from amongst the best of the skilled employees. It is likely that in future the sector will, to a greater extent, be "forced" to recruit university graduates with no sector-related background and then train them in sector areas.

With regard to the future skills of employees, the following picture emerges:

It is likely that specialization will continue at an unimpeded rate. Tasks will change in a number of areas as many manual operations will disappear and be replaced by more process-oriented control and monitoring tasks. The question is whether the three sectors under review will continue to train apprentices and thus use skilled employees or whether they will, to a greater extent, use completely new employee categories (e.g. metal workers) or, as an alternative, unskilled employees.

There is no simple answer to this question.

The meat sector does not, for instance, distinguish between skilled and unskilled employees, thus there is no financial reason to have agreements.

It is, however, necessary to take into consideration the fact that meat production, for example, as opposed to the metal sector, handles biological items in a separating process necessitating basic insight into and knowledge of a number of meat related problems. In view of the sector's overall strategic development possibilities as manufacturers of highly processed primary produce and the associated creation of an extensive quality control system to ensure a uniform primary product standard, it is likely that in future the sector will need skilled employees with a high degree of expertise in meat. In addition these employees will also need to be multi-skilled in order to handle a number of production aspects. However, the nature of the skills required will change in a number of areas due to automation and these changes will gradually be incorporated into basic apprentice training.

Future overall recruitment strategy in the meat, dairy and brewery sectors will entail the recruitment of more employees from outside the sector, especially for management, control and marketing jobs where the requirement will be for employees with medium level commercial education. As mentioned above, recruitment has traditionally been internal but in future these positions will increasingly be filled by economists, marketing graduates, etc. In areas such as product development, quality and process control, the sectors already employ people with either a technical or university background. The sector trend to use these groups of employees has declined in recent years which is not immediately explainable. It is likely that the priority will change, linked to a sector demand for training institutions to provide continuing training directly aimed at meeting sector needs. For example, market-oriented product development, biotechnology, etc. A number of continuing training activities can, thus, be expected for this target group.

4. TRAINING AND RECRUITMENT

1.

The general development trends in a markedly increasing international competitive situation will lead to higher priority being given to continuing training in the Danish food sector. In addition to sector specific factors pointing to increased efforts in respect of continuing training, it should be noted that the age structure of the workforce is currently changing, with fewer young and more older employees. Furthermore, the technological development the food sector is undergoing indicates that efforts should be directed towards improving the existing workforce's skills, especially in relation to the operation of new processing equipment, and overall understanding of production flow, the process and product. Finally, there are a number of company external factors which also highlight the necessity for increased efforts for continuing training, e.g in product development, marketing, etc.

The EC Directives regarding food handling and production have been followed up in Denmark by a number of national acts stipulating increased efforts in a number of areas, such as production technique, veterinary provisions, hygiene standards, quality, environment, etc. These will all necessitate a massive effort in relation to continuing training in the near future and, at present, the responsibility for this lies with the individual sector or company.

4.1 Continuing training – public or private?

As previously mentioned, a political tradition that training activities are generally a public responsibility and obligation has developed over the years: This includes all levels from primary school to university.

Tuition is, in principle, free of charge at all levels; it is financed by tax payers. This tradition also applies to vocational, basic and post-basic training and, to a large extent, also to continuing training (AMU).

The effect of this principle has, however, also been that companies have become used to a number of state institutions undertaking the task of training, resulting in the responsibility lying with the state and not the individual company. At the same time, it is a general feature of Danish business that the majority of companies are small with few employees.

A summary of these circumstances shows that many companies regard and use the various training systems in place of a company training department.

The remaining problem is, however, that most companies do not have the immediate skills, either organizationally or in terms of employees, to carry out the task. This problem is greatest with regard to continuing training because many companies have simply not been used to thinking and acting strategically in connection with training. They have become used to continuing training being offered by either the AMU or vocational school systems which are, of course, not directed towards the special problems of the individual company but towards the sector as a whole. If the companies want "company adapted" continuing training from the public system, both co-funding and the company's active participation in course planning are necessary. There are comparatively few large companies with training departments which have the skills and carry out systematic employee continuing training in accordance with company strategic goals. The problem is particularly acute in the food sector where companies do not generally allocate resources for training but rely on cooperation with public institutions. However, the meat and dairy sectors in particular are in a good position as they both have access to nationwide specialist schools which in numerous ways, therefore, act as the training department for the companies and have specialist insight into sector matters.

4.2 The vocational training system in Denmark

It is, of course, important to know the extent and quality level of initial vocational training in relation to the identification of continuing training requirements. It is assumed that the more relevant and company adapted the initial training is, the less need there will be later on to improve workforce skills by means of continuing training. In general, the Danish level is high; 90% of young people complete initial vocational training and the Vocational School Reform of 1990 established a system which clearly delegates the responsibility for training content and tuition to the trade and local educational committees. A system has, thus, been established which makes it possible to continually adapt the vocational content according to the companies' needs. Training is also carried out on an alternance basis with theoretical and practical training in school and time spent, mainly in practical training, in the company. Thus, there are good possibilities for initial training to be both up-to-date and relevant.

The vocational training system in Denmark consists of 120 schools distributed throughout the country and the basic structure of the 85 courses offered are mainly as described below.

A typical vocational education and training course consists of an initial school period of 20 weeks duration or a practical training period of similar duration. The second school period follows immediately afterwards and then the course alternates between practical training and school periods. There are approximately 85 vocational education and training courses, but during the individual principal courses the student may choose to specialize. In effect, there is a wide range of choices in the vocational training system.

The underlying principle of the course structure is that all students receive the same basic training during the first stage; the degree and specialization subsequently increases the further they progress in their training.

4.2.1 Admission
There is normally no restriction on admission to vocational training.

Students may enter a vocational training course in two ways: They may start directly at the vocational school and undergo a 20 week school period or they may start the course with a practical training period in a company. After the second school period, the students must complete a practical training period which means they have to enter into a training agreement with a company.

4.2.2 The first school period
It is the overall aim of the first school period to make the students more confident in their choice of training. Teaching is focused on practical tasks and workshop activities.

In parallel with the teaching, the students are given a thorough orientation into the individual courses; they are advised of the requirements for graduates in the individual occupations and opportunities of continuing education and training in their field.

4.2.3 Practical training
If a student wishes to commence a course with a practical training period in a company he or she must have a training agreement with the company. The training agreement must cover the whole training course and not just the introductory, practical training period.

The company must contractually commit itself to train the student and only when the contract is signed can the student commence the training course. The trade committees, who are made up of representatives from the employers' and employees' organizations, are responsible for the individual courses and approve the company as a practical training location.

4.2.4 Assessment
The students' work and progress are subject to continuous assessment, either in the form of an examination or assessment by the teacher of classwork. In both cases the student's work is graded. Most vocational education and training courses end with an examination. Depending on the course followed, it may be in the form of a journeyman's test, an examination or a combination of the two.

4.2.5 Optional subjects
In addition to providing the students with practical skills, the vocational training courses are also meant to strengthen the students' general knowledge, their personal development and give them an understanding of the structure and development of society. Each school is, therefore, committed to offering a broad range of optional subjects.

4.2.6 Administration
Vocational training systems are governed by two sets of rules; one lays down the targets and framework which apply to all vocational schools and courses. They are defined in the Vocational Training Courses Act, the Vocational Schools Act and a dozen ministerial orders covering the individual parts of the vocational training courses. The other set of rules relates to the principles of the individual courses and these are laid down in the education orders.

The trade specific committees determine the vocational goals which the local education committees will later convert into teaching in the schools. As a result of the administrative regulation of the courses, there is a free choice of school and teachers for the students; not only do the students choose the course and, thereby, their future job, they also have the opportunity to choose the type of teaching which suits them best.

4.2.7 Funding
In principle tuition is free but the students have to pay a token deposit for admission to a vocational school.

The student receives a salary during the practical training period and a student who commences the course with a practical training period will be paid a salary during the whole course. However, students who commence the course with a school period have to find other ways to make ends meet during the first school period; once the student commences the practical training period, he or she is paid a salary.

4.3 The continuing vocational training system in Denmark
The total volume of continuing vocational training in Denmark cannot be documented; data for continuing training is extremely sparse and insufficient. In general, the demand for both public and private continuing training soared in the 1980s and is expected to increase still further in the 1990s. The description below is limited to public continuing training since data for private training was not available. It should be noted, however, that the scope of private continuing training in Denmark has reached considerable proportions, probably exceeding public continuing training.

Since the 1960s there has been broad political acceptance in Denmark that continuing training is a public matter and should be paid for from public resources.

Two ministries are responsible for public continuing training in Denmark, the Ministry of Labour

and the Ministry of Education (talks are currently in progress regarding the possibility of strengthening coordinated efforts by gathering all these activities under one ministry).

The following description concentrates on continuing vocational training under the auspices of the Ministry of Labour with only a brief description of activities undertaken by the Ministry of Education.

4.3.1 Historical background

The AMU system, which is the most important and, in terms of volume, the most interesting of the public continuing training systems, dates back to 1940 when the unskilled employees' union took the initiative and established this system. Against the background of the boom in 1960, the Folketing passed an act of continuing training for semi-skilled employees, at a time of a generally increased demand for unskilled labour combined with the introduction of a number of new work techniques. At the same time the Act was intended as an incentive for unskilled young people.

In 1965 the Folketing passed a further act on continuing training for skilled employees who were then placed on an equal footing with unskilled employees. In 1965 retraining courses were introduced to meet bottle-neck problems in industry. From 1972 (a year of crisis in Denmark) special pre-vocational training was introduced for young unemployed people and in 1978 was extended to other unemployed groups including women and immigrants. 1971 saw the introduction of a wage compensation scheme.

4.3.2 The current legal basis for the labour market course system (AMU)

The present Act was passed in 1986 and includes continuing training for unskilled and skilled employees and special courses for young people, women and the unemployed. As a new initiative, the AMU was also empowered to offer continuing training to other groups, the most noteworthy feature being that foremen are now also covered by the Act. In addition the Act facilitated special individual company, tailor-made courses with 75% of expenses being paid by the state and the remaining 25% by the company. The state grants course/loss of earnings compensation for all areas of continuing vocational training according to the rules in force.

4.3.3 Funding

Course activities within the AMU system are financed by the AUD Fund (a Danish training scheme for all public and private employees) which is paid for by both employers and employees. AMU operational expenditure for courses in 1987 was:

Courses for unskilled employees	DKK 544 million
Courses for skilled employees	DKK 257 million
Other courses	DKK 208 million

DKK 751 million should be added to these figures in respect of compensation for loss of earnings, travelling expenses, etc.

4.3.4 Structure

The Minister of Labour is ultimately responsible for the AMU system. An educational council has been established to act as an advisory body and both sides of industry are equally represented on this council. The council has created four educational committees with the power to establish sectoral committees with equal representation. In this way the individual sectors have a large say in what the AUD capital is used for. From the outset the Danish food sector has established the relevant sectoral bodies and through these has exerted considerable influence on the number and content of courses.

4.3.5 The labour market course system – summary

The AMU system is the most important state initiative for continuing vocational training in Denmark. In terms of course activities and use of resources the system is growing, a growth which is expected to continue. In recent years the system has been brought up-to-date with the establishment of AMU schools which now form a national school network. A characteristic feature of the AMU system is that the development of flexible courses is increasingly important, courses which specifically aim to fulfil the continuing vocational training needs of individual companies. AMU courses are run either in AMU schools, vocational schools or on company premises. Within the scope of this study it has not been possible to document the Danish food sector's exact use of the AMU system. However, the case studies should shed some light on this. The slaughterhouse, dairy and brewery sectors all have established sectoral committees which make extensive use of the AMU system. Political trends in Denmark indicate that, with regard to future continuing training, agreement may be reached on placing public efforts high on the list of priorities; the AMU system, in particular, is expected to receive considerable resources.

Political discussions are currently taking place concerning a more expedient use of public resources to fight the very high unemployment rate in Denmark. The all important principle, which has been set in reports from two ministerial committees, has been to link the considerable Danish "transfer payments" to a requirement that the resources be used for active purposes, i.e. "active use with requirements", instead of the former "passive receipt without requirements". It is envisaged that this will require unemployed people to undertake continuing training in sectors with "bottle-neck problems". This goal has received broad acceptance both from the political parties and the two sides of industry.

Simultaneous with the on-going discussions, publicly financed training and education is in the midst of a period of evolution, where the demands put forward by all interested parties can be summed up as "more and improved training and education". This means demands for more flexible teaching methods, possibly including information technology solutions. The following, promising, initiatives should be noted: The VUS scheme (support training for adults) which enables people without medium- or long-term vocational training to undertake training during working hours. The course content is of an all-round nature, but up to 25% may be specifically related to the sector. Training may take place in the company and the state subsidizes loss of earnings, course development and trainers' salaries. The scheme is comparatively new and it is too early to assess the results. However, this initiative can also be seen as recognition of recruitment problems facing all parts of the sector due to the continually falling numbers of young people. Efforts are concentrated on employed and unemployed adults.

Another example worth noting is the favourable opportunities for adults receiving proper vocational training. Finally, there is the "open training scheme" under which individuals or companies formulate their own training based on existing and recognized training schemes. These training courses can be completed in pairs if special qualifications are required and can take place at any time and in the long-term be combined to form a fully recognized training programme. The student or individual/company organizing the training pays approximately 20% of the costs, the rest being subsidized. After only two years, this scheme has already justified itself.

Taking everything into account, there are many indications that future training schemes will increasingly have to recognize the companies' difficulties in connection with participation in traditional continuing training programmes. Flexibility, continuing training as an integrated part of the very organization of the work process, on-the-job training and multi-media training are keywords for future continuing training in Denmark.

4.4 Continuing vocational training organized by the Ministry of Education

Resources are also available from the Ministry of Education; in recent years these funds have totalled DKK 130 million. In contrast to the AMU system, these resources are used to include the individual company or consortium of companies in the entire process, i.e. the identification stage, development stage and, later on, the phasing out. In order to obtain a grant from the Ministry, a company has to demonstrate active participation, usually in the form of co-funding, amounting to at least 30% of development costs. The scheme is a relatively new and in many ways innovative one, the starting point being cross-disciplinary in the sense that the aim is to fulfil actual company training needs, not to fulfil traditional requests from a specific trade or sector. Development funds (for the development as well as the phasing out stage) can be applied for by private and public course schemes alike. The target is the so-called "in between group", the group between the skilled and academic level, generally with a certain degree of management responsibility.

The scheme has found extensive use within the vocational schools, in particular, in cooperation with consultancy companies. This has in many ways promoted a more efficient use of public funds for continuing training since schools, companies and private consultancies have been obliged to enter into a binding cooperation with report, efficiency review and pilot course requirements, thus ensuring a high degree of utilization. The aim of this scheme has, moreover, been to test new innovative models for continuing training. Considerable sums have already been granted for various types of multi-media and distance learning schemes. Finally, the scheme has promoted a higher degree of willingness to carry out analyses with the various parties involved in continuing training. One example is a number of schools and some of the larger Danish companies which, together, developed a new method of identifying a company's continuing training needs. This method (Competence 2000), which to a large extent involves the individual employee who is to undertake subsequent training, and the company's strategic goals, is widely used today in many Danish companies. All results are, thus, always made available to anyone who shows an interest in the scheme.

5. FUTURE TRAINING REQUIREMENTS

1.

With a view to creating an up-to-date empirical basis to support future initiatives by the Danish government and the two sides of industry in the field of continuing vocational training, the National Institute of Social Research implemented the largest all-round study to date of continuing vocational training in Denmark. The report was published in 1991. The basic data, from both the companies and employees, is comprehensive and its nature such that the report's conclusions can be considered generally applicable to all sectors, including the food sector from which 98 companies took part in the study. The conclusions of the report thus form the background for the following description and discussion of a series of general issues applicable to the Danish food sector.

5.1 The scope of continuing vocational training in Denmark

One-third of all employees between the ages of 20 and 60 (approximately 740,000 people) have never taken part in continuing vocational training activities; two-thirds state that they have taken part at least once. Furthermore, the study shows that there is a tendency for the same people to participate. Trade affiliation and job category are the deciding factors for participation in continuing training. Not surprizingly, participation frequency is highest amongst the monetary and finance sector and lowest within manufacturing companies with few employees. A higher level of participation can be assumed for food sector companies, compared to the rest of the manufacturing sector, as these are generally large companies by Danish standards. Union membership in the food sector is relatively high, a factor which is of crucial importance to participation. In addition, the rate at which this industry is introducing new process technology is comparatively high, a factor worth highlighting.

It is estimated that, on average, 1.2% of working hours in Denmark are spend on continuing training; here, again, there is a disproportionate spread with white-collar workers being estimated to spend 1.7% and the unskilled about 0.6%. It should be noted that the food sector in Denmark employs a large number of unskilled people. The study also draws attention to the fact that companies with a technological head-start are relatively more inclined to use resources for continuing training than companies who are lagging behind. Thus, there is a correlation between a company's investment policy and the frequency of continuing training. The Danish food sector, headed by the slaughterhouse and dairy sectors, is, generally, in a powerful position as regards technological development. The level of continuing training in these types of company can, thus, be expected to be higher than in other manufacturing companies. Finally, it should be emphasized that both the slaughterhouses and dairies have access to large sector-oriented schools and colleges operating on a nationwide basis.

5.1.1 Organization and funding of courses

Continuing training activities are classified under five main categories in the report, depending on the auspices under which training takes place. 40% of companies make use of in-house courses, approximately 25% use the publicly financed AMU courses and approximately 33% take advantage of courses offered by the employer and employee organizations. In addition, one company in three uses "other courses".

A general feature indicated by the study is that continuing training in Denmark normally involves no cost for the students (however, 3% had suffered some loss of earnings in connection with such activity).

5.1.2 Recruitment and reasons for continuing vocational training

Almost half the course participants undertook training without any request from their employer. However, of the unskilled people, only one-third took part on their own initiative.

The report shows that both the employees and the companies felt that the most common reason for continuing vocational training was the company's implementation of new technology and working methods. The companies' rationale for in-house courses is clearly based on management demands and initiatives for continuing training for employees (new technology).

With regard to suppliers' courses, the reasoning is primarily the introduction of new technology and materials as well as the production/sale of new products.

The reasons given for AMU courses are slightly different. 40% of the companies state that these are related to employee wishes and related to new technology, new work assignments and new employees. It should be noted that approximately 12% of companies gave less pressure of work than normal at the time of enrolment as their reason for participation in AMU courses; a consideration not applicable to other types of course.

5.1.3 Practical application of skills acquired

The majority (87%) of students questioned stated that they had been able to apply what they learned on their most recent course in their work. Taking applicability as a criterion for success, it may be concluded that most continuing training in Denmark is a success.

The following table shows that course participants generally assess what might be termed "personally related labour market impact" as high.

Table 5.1 – Results from course participation

	%
Greater personal satisfaction	80
More interesting work assignments	25
Improved career opportunities	20
Better job	10
Higher wages	10

5.1.4 Company evaluation of courses

Companies generally rate the benefits obtained from courses highly. Assessments vary according to the type of course and employee group. For example, companies value the benefit gained from suppliers' courses where blue-collar workers are the target group.

5.1.5 Desire for continuing vocational training

According to the study, two-thirds of employees state that they would like to undertake more continuing vocational training. This wish is most marked amongst groups that have the participation rate to start with. The study does not make it clear whether the group was actually willing, but this should be generally interpreted as the employees' immediate motivation for further continuing training.

The study showed that the desire for more continuing training among white-collar workers was based on a fear of unemployment, a determinant that does not apply in the case of the blue-collar workers.

5.1.6 Need for continuing vocational training

45% of employees feel that they have a need for additional continuing vocational training in connection with their current work. 55% of the companies stated that they have an unmet requirement for continuing training. Inter-sector competition plays an essential role in the companies evaluation of this requirement. Companies with a low level of technology evaluate this need as being greater than those with a high technological level. However, the willingness to implement specific activities is inversely proportional to these statements.

5.1.7 Content of continuing vocational training

It is not possible within the context of this report to detail the series of special course subjects spread over the five types of course; in general the subject profiles of the five course types are as follows:

- In-house courses cover a wide spectrum with the main emphasis on management, economics and administrative topics, including computing.
- AMU courses typically cover topics relating to physical production (operation of machinery and equipment, knowledge of materials, safety factors).
- Suppliers courses are linked to the supply of equipment and materials.
- Courses offered by training organizations can be described by keywords such as management and economics, administration; a "behavioural" course for shop stewards can also be added to this group.
- The "other courses" group covers topics such as management and cooperation, economics, administration, computing and foreign languages.

5.1.8 General or specific training requirements?

A characteristic feature is that employees generally expressed a need for continuing vocational training with a broad-based application (i.e. in other companies/sectors). This is particularly important since companies are often assumed to be reticent when it comes to non-company specific courses, for fear of being unable to recoup their training investment.

5.1.9 Future continuing vocational training requirements

According to the study, 80% of companies consider that their employees will need continuing vocational training in the future. 46% think that the requirement will be greater for sales and marketing courses; 42% indicate computing for administrative purposes and 42% point to management and organization. Quality control and personal development are also topics expected to assume greater importance in forthcoming years.

5.1.10 Barriers to continuing vocational training

The study showed that the prime cause for failing to cater for a recognized continuing vocational training requirement was "pressure of work", the main reason stated by both employees and companies. The companies state that they have problems sparing employees to take part in courses. Another important argument is the "high cost of continuing training". It should be noted that approximately half the employees indicate that they are willing to take part in continuing vocational training during their leisure, i.e. unpaid, time.

5.1.11 Conclusion and discussion

Danish employees spend, on average, approximately 1.2% of their working time on continuing training. This corresponds to well over 40% of employees taking part in continuing training during the course of a year, although it should be noted that white-collar workers are in the majority. This quantitative observation says nothing, however, about the useful value of the activity. Would there be any point in increasing the percentage rate for continuing training? It is altogether very difficult to determine what resources should be used for optimum effect. To

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answer this question, the objectives for continuing vocational training, in general, must be laid down beforehand. Is it to be used to solve the structural problems which many sectors, including the food sector, find themselves facing or is the aim a narrower company specific one directed at requirements created by technology developments, hygiene regulations, safety levels, etc.?

The principal barriers to continuing training indicated by the study are "pressure of work and difficulties in managing without employees" In Denmark's case the obvious step is to try and combine this observation with the fact that approximately 10% of the workforce is unemployed. Rotation schemes might be envisaged in which, as part of their qualification process, unemployed people work as temporaries, standing in for those selected for continuing training. In a labour market with a declining young population and, thus, an impending lack of skilled labour in the future, this seems to be an idea worth trying.

5.2 The role of vocational colleges in continuing training

The public training institutions in Denmark play a central role in continuing training. Mention has been made of schools in the AMU system and the following description will, therefore, be limited to the vocational colleges. Most of Denmark's 120 vocational colleges serve a local area where they offer initial, post-basic and continuing training for a number of sectors. The food sector, for historical reasons, is particularly privileged; two of its largest sectors, the dairy and slaughterhouse sectors, have comparatively large nationwide specialist schools; viz Dalum Technical College (the Danish Dairy Training Centre and, thus, the specialist school for the dairy sector) and the Danish Meat Trade College in Roskilde (specialist butchery school).

The brewery sector also has a specialist vocational school, the Scandinavian School of Brewing. Given that the activities of these specialist schools are, individually, rather extensive and complex, the following description is restricted to the Danish Meat Trade College in Roskilde and can be generally assumed to be applicable to the other schools.

5.2.1 The Danish Meat Trade College in Roskilde

The Danish Meat Trade College in Roskilde, with 450 employees, is one of Denmark's largest vocational schools. The college was founded 27 years ago on the initiative of the Danish Bacon and Meat Council. The college is an "independent institution" operating on a private financial basis, but, in a number of fields, operations are governed by a set of official rules. Approximately 80% of college income is derived from public funds, calculated on the basis of the number of students.

The college has a very strong affiliation with the sector, particularly the manufacturing sector houses. The college's executive committee is, thus, traditionally nominated by the Danish Bacon and Meat Council. Furthermore, the college's highly active executive committee is made up of an equal number of representatives from different quarters, the most important being the National Union of Food and Allied Workers in Denmark (NNF) and Slagteriernes Arbejdsgiverforening (Federation of Danish Slaughterhouse Employers). In addition, a number of local education committees are attached to the individual training fields offered by the school curriculum. Here, too, the characteristic composition of the committee is based on equal representation of the employers and employees.

5.2.2 Production training facilities

The Danish Meat Trade College in Roskilde and the Dalum Technical College are both unique in the sense that they have full-scale production factories which are used for both teaching/training and experimentation.

The Meat Trade College operates a training and experimental slaughterhouse which slaughters 50,000 pigs per year. The student-cum-trainee production is freely sold on the market and the college is an authorized export slaughterhouse with a large part of its annual turnover deriving from exports to the United Kingdom.

The internationally accredited Danish Meat Research Institute, with which the Meat Trade College has set up a close cooperation, although it remains traditionally separate, is also located in Roskilde.

In summary, the Danish meat sector has successfully established a centre of knowledge which, in its own unique way, links research, development and training into a unified whole.

5.2.3 International objectives

The college offers training courses within the field of initial, post-basic and continuing training to both Danish nationals and foreigners. The college's international department is currently experiencing an increasing growth rate in sales for its training and special course activities throughout the world (especially Europe and Scandinavia). Through its international objectives, the college occupies a central position in a number of EC financed projects, the purpose of which is to promote continuing training in the European meat sector (FORCE, COMETT, EUROFORM, LINGUA).

Prospective students come from both the retail and production areas of the slaughterhouse sector.

From its many activities, the following description concentrates on the college's continuing vocational training offer for the production sector.

5.2.4 The company's training department

A characteristic of college initiatives within the field of continuing training is that they are developed and planned in close cooperation with representatives from the sector, particularly the NNF and Slagteriernes Arbejdsgiverforening.

Close cooperation has also been established with the Danish Meat Research Institute with a view to identifying traditional training tasks associated with the introduction of new technology in the slaughtering aisles. The planning of the college's continuing training programmes is distinguished by the college's prospective work on behalf of the sector and the individual slaughterhouses. In many cases the college acts as the company training department and, amongst other things, maintains career records for individual employees.

However, requests from the companies are also common and the college has organized its continuing training efforts with one department specialized in this activity.

In summary, there is a general consensus within the sector that the Meat Trade College in Roskilde is the training location for the sector both with regard to initial and continuing training.

5.2.5 The relationship between training, research and production

It was decided to establish the first trial unit for the development and implementation of a high technology classification centre in the college's slaughterhouse. The actual developmental work was carried out by the Danish Meat Research Institute. It quickly became apparent that these high-technology facilities, which were also extremely important for the sector in terms of primary product strategy, would require extensive continuing training for a number of employee groups in the slaughterhouse companies.

Even before the first unit was put into service by a slaughterhouse company, the relevant employee groups had undertaken a series of courses enabling them to operate the equipment to optimum effect.

The link between research and development and training was central to this comprehensive continuing training programme which, during its initial phase, involved a total of 500 people. The specific training focused on plant operation/maintenance/repair tasks although general comprehension goals were also contained in the programme with a view to consolidating hybrid inter-sectoral competence.

A series of continuing training programmes is being conducted along the same lines as those described above following collective sectoral decisions to introduce a series of new production technology innovations in the slaughtering aisle process in all slaughterhouses. Various interested parties regard this organizational model as being very efficient in terms of the introduction of new technology. Future innovations within sorting, classification, quality control and CIM will be similarly organized by the college. The (weekly) courses are financed by the individual slaughterhouse companies.

5.2.6 Management courses

As new production technology is introduced there is an increased need for middle management to obtain the skills to undertake new, often interdisciplinary, managerial tasks. The college is thus conducting an on-going analysis of tasks in collaboration with the sector in order to identify these requirements. Against this background, the college is offering an extensive, regularly adapted, continuing vocational training programme for middle managers in the slaughterhouse sector.

The course syllabus increasingly contains elements of a general nature, for instance subjects such as meeting management, quality comprehension, the manager as an employee developer, etc. The target group are the "master journeymen" or other skilled people who have displayed flair and, at the same time, are predisposed to career progression. The college records the individual participant's career plan and, thus, ensures a continuous accumulation of skills in slaughterhouse management potential. The individual courses are held in Roskilde and typically last one week during which the participants are accommodated at the college's hotel and course centre, which boasts up-to-the-minute facilities. The courses are funded through the AMU subsidy system.

5.2.7 Continuing training for unskilled employees

For many years the college has offered introductory courses for newly appointed slaughterhouse employees. These courses are held peripatetically at slaughterhouse premises and conducted either by the colleges' regular teachers or a staff of trainers. These trainers are recruited after completing their apprenticeship in the individual slaughterhouse and have followed a special sequence of courses at the college. The courses, which are funded through the AMU system, are aimed at unskilled adult employees. The unskilled employees are able to link a number of courses together to form a valid vocational training programme, on a par with a "normal" trainee apprenticeship.

5.2.8 Summary

It is impossible within the framework of this report to examine all the many continuing vocational training options offered by the college. Each year the college presents a prospectus to the sector, providing an overall, modular review of the many options available. It should be noted that this is a

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continuing training scheme with a modular design and many points of access, as well as "discontinuation options", geared to the individual company's requirements. Furthermore, the scheme represents a unique chance for the individual employee to map out his/her career path. Course development is regularly discussed with the sector and, thus, on-going efforts are made to predict future continuing training requirements and to be ready with a training programme to hand.

It is characteristic of the college that it closely monitors the companies' use of their workforce. During periods when the slaughterhouses are forced to make employee cut-backs, the college holds information sessions on the opportunities, both financial and substantive, for skill upgrading instead of redundancies and the consequent loss of amassed skills.

In the final analysis, of course, it is the company's economic considerations which are crucial in such a choice, but the individual slaughterhouse employee must also be briefed, in depth, as the course period often entails a slight drop in remuneration because the individual in question is excluded from the piece-work scheme for that period.

Analyzing the college's continuing vocational training programme it is clear that, compared to the past, there has been a move towards increased offers to the intermediate group in the slaughterhouses, a group that will, foreseeably, play a central role in the introduction of various automation technologies.

The courses on offer show that, in future, the college will opt to focus on the so-called "soft qualifications" under headings such as quality consciousness, cooperation, organizational development, etc. The rationale here is the college's assumption that this group will form the "key people" of the future within the sector and that a boost in skills is necessary in order to guide future developments.

6. SUMMARY

The topic of quality will be a special area of commitment for the Danish food sector which has chosen to commit itself predominantly to a primary produce and sub-supplier strategy. It must be expected that foreign purchasers of Danish foodstuffs will increasingly demand that production is certified in accordance with an internationally accredited standard to enable the purchasing company to minimize its costs, for example, on incoming controls. In addition, the purchaser will require a carefully balanced guarantee with respect to product quality, based primarily on consumer requirements regarding taste, fat, appearance, nutritional value, etc. Against this background, it is interesting to note that a Danish slaughterhouse is the first in the world to achieve ISO certification. In addition, it is particularly interesting that this ISO project involves primary producers, thus creating an inter-connection within the chain of values, which might almost be termed a quality chain.

The Steff-Houlberg case study permits a number of interesting observations. It is notable that ISO certification is carried out as a joint project involving all company employees. In this connection it is striking that the various projects are all instrumental in conveying an overall understanding of this quality concept. Thus, it is not a one-sided behaviour therapy, but rather a change of attitude resulting in changed behaviour. Moreover, it is remarkable that all the employee groups generally displayed great interest in the project. Typical reasons given for this interest were that they were able to immediately grasp the sensible and sound thing in the management's presentation of a project which so strongly stressed "quality control" as a development strategy. It has certainly proved profitable in terms of continuing vocational training activities; already, after the first year, it has been possible to demonstrate a number of economic improvements. The Steff-Houlberg experiences will eventually be placed at the disposal of all Danish slaughterhouses. From the very beginning the project was planned in such a way that the results could also be used in other companies. Another interesting aspect is the link between the project and primary production. The company's declared goal is that the quality control system must, of necessity, comprise the whole "from soil to table" chain. The current general trend in Denmark is that continuing vocational training is a "hot" political subject. There is general agreement amongst political decision makers, both in the Danish parliament and in sector organizations, that continuing vocational training initiatives should be given higher priority and constantly rendered more efficient. In the light of this there is a clear political aim to provide increased subsidies for this field.

An interesting Danish approach is the current endeavour aimed at implementing systems which will connect initiatives for the unemployed with the need for increased continuing vocational training initiatives.

There is a strong political desire in Denmark to change the unemployment system so that the unemployed individual is no longer a passive recipient of public assistance but is activated either by means of training or a job of, albeit, limited duration. The goal is for the unemployed individual to either improve/change his/her occupational skills or at least keep in touch with the labour market. The newly implemented VUS scheme is a publicly financed scheme enabling employees with little or no educational qualifications to participate in courses during working hours.

The initiative for implementing a course is taken either by the individual company or the sector organization in question. As a rule, the course participant, employed by the company, incurs no costs, as a payment from public funds, corresponding to maximum unemployment benefit, is made. In the event that this payment does not cover the employee's normal remuneration it is possible that the individual himself or the company will supplement his income up to the normal rate. With regard to course content, the VUS scheme is not permitted to cover elements aimed at vocational qualifications. Course subjects are aimed at improving general skills, e.g. language, spelling, reading, etc. However, the subjects may, to a certain extent, be sector oriented. Several case studies undertaken have revealed great interest in the VUS scheme which is considered to be directly applicable to the fulfilment of strategic company goals. In addition, the scheme has particular relevance to the food sector, as many employees have a poor educational background. An overall up-dating of the employees' general education level is considered a prerequisite for a subsequent, goal-directed continuing training programme. The VUS scheme appears to offer a number of interesting possibilities with regard to the endeavour to integrate initiatives to relieve unemployment and raise educational levels; the possibility of establishing rotation schemes seems to offer great potential.

Rotation schemes are an arrangement whereby a previously determined number of employees undertaking a permanent training programme are temporarily replaced by unemployed individuals. The advantages accruing from this scheme are that the unemployed keep in touch with the labour market and, at the same time, the company skill level is raised. These schemes seem to offer a great deal of potential, particularly in the food sector with its many simple work tasks. Furthermore, the company itself takes an active role in identifying the content of VUS programmes. It should be noted that the law imposes severe restrictions on the VUS scheme regarding the arrangement of continuing vocational training programmes adapted to companies.

To date the arrangement has generally been found to be successful. In the long-term more flexible barriers between general and company specific subjects are predicted so that it will become possible to implement true occupational continuing vocational training. This should be viewed in the light of the aforementioned increased awareness amongst the social partners of the need to find alternative ways to strengthen initiatives to improve continuing vocational training and meet individual companies' requirements.

There was a general observation throughout this study that the Danish food sector is very aware of the many initiatives currently being taken by the Commission within the food sector.

This highlights the numerous directives with direct relevance to the food sector, the vast majority of which have been followed up by national legislation and which have been thoroughly discussed in trade publications, seminars and conferences. Taking into account the export-oriented nature of the Danish food sector, the Danish ministries, institutions and trade organizations have attached great importance to this area from the start.

Danish food sector companies have directly and systematically aimed to incorporate the directives into the planning of company strategic development opportunities and have also demonstrated a willingness to earmark resources to provide the necessary continuing vocational training involved.

The general attitude amongst the social partners and the companies is in favour of an open and free European market for foodstuffs and initiatives to create equal competitive conditions with the EC are supported. This study envisages no appreciable difficulties for the Danish food sector to meet the provisions of the individual directives, especially where hygiene and veterinary services are concerned. For years Denmark has been building up a strong starting position in terms of both handling and processing foodstuffs.

However, it cannot be denied that Commission initiatives contribute to the burden on the Danish food sector, at a time when there is a general weakening in the world economy.

A typical feature of many of the directives is the aim to raise the quality of fully processed foods. These directives, which are often justified by consumer preferences, thus encourage the individual company to be able to certify its quality control and production processes. Assessed from the continuing vocational training viewpoint, this initiative has frequently tended to impart a combined attitude to all employees, e.g. that of hygiene and quality. It is interesting to note that in this context the social partners clearly feel that they have a common interest. This is concretely reflected in that fact that companies arrange continuing vocational training programmes involving the adaptation of both attitude and behaviour, activities which are often joint arrangements regardless of working tasks and status in the company. The Steff-Houlberg case study substantiates this trend quite clearly.

A problem raised by Commission initiatives in relation to the food sector lies in the fact that they do not set aside resources to implement the necessary national continuing vocational training but leave this to national legislation. It is a common feature of the companies studied that their continuing vocational training activities are financed from public funds, typically the AMU system. The political tradition of publicly funded continuing vocational training courses in connection with a well-developed educational system comprising technical colleges and labour market (AMU) schools has meant that the companies (especially small ones) have not been obliged to build up the necessary skills to implement a continuing vocational training course. To a great extent, it could be said that these schools operate as the companies' training departments both with regard to development, achievement and analyses. This system has many advantages but the disadvantage is that the companies are not forced to build up internal training competence, which is especially characteristic of small companies.

However, the case studies show that matters are changing and companies now participate in arranging continuing vocational training courses, especially those concerning the foundations of the company (e.g. ISO certification) which demand a high degree of active cooperation and competence. This also applies to the introduction of new technology (e.g. the Carlsberg case study). The introduction of new technology affects the very organization of work which, of course, actively involves the company. It is surprising that none of the companies studied uses information technology (interactive video, CBT, etc.) in continuing vocational training (only Steff-Houlberg used a video to supplement training), particularly since these methods are in the process of being introduced in Denmark.

Another interesting feature of the case studies is the high demand for skills. There is a distinct trend, much stronger than previously, to seek qualifications of a hybrid or general nature. The explanation for this is likely to be found in that fact that increased process automation necessitates a completely different work organization which completely breaks away from traditional specialities and skills. It is, therefore, important to the companies that the individual employee is multi-skilled and able to take a comprehensive view of production. The trend applies to the companies' introduction of new production technology. It has been found that to a greater extent than previously companies are demanding more general skills,

e.g. management and cooperation and communication, together with an overall understanding of the total process flow. In the immediate future, a change in employee skills can be expected in the Danish food sector. New skills will gradually be added to traditional occupations, preferably from the commercial field.

Despite preliminary expectations, an increased interest in continuing vocational training courses has been identified throughout the study in terms of both the social partners and the companies. A clear tendency to regard continuing vocational training as an investment in the future is eclipsing the view that continuing vocational training is an additional company cost. Continuing vocational training is an investment in the future that will strengthen the competitiveness of the individual company.

APPENDIX

1.

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PART 2:

CASE STUDIES

1. Løven Petfood A/S
2. Nr. Vium Mejeri
3. Carlsberg A/S
4. Steff-Houlberg

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1. LØVEN PETFOOD A/S

Introduction
This case study deals with a medium-size feedstuff undertaking which was taken over by a major drug company, Løvens Kemiske Fabrik (Lion Chemical Works) in 1987.

Løven Petfood A/S (Lion Petfood Ltd.) has been built up and structurally altered since its take-over. Production has concentrated on purely wet food in CanFlex-packing. Investments have been made in production technology and production has been rationalized and made more efficient which has resulted in considerably increased productivity. During the last five years the number of employees has grown from 25 to 160 people. The case study is concerned with a planned course, of one week's duration, for the 50 production department employees.

The course was specially designed for Løven Petfood A/S and deals with the specific company production process and conditions. This is the first time such an initiative has been undertaken by the company and it has great expectations. The case study is based on interviews with key personnel from the company, which were held on 6th January and carried out by Jette Bang Jensen MA.

1. Company overview

1.1 General description of the company

1.1.1 General company data
Løven Petfood A/S (Lion Petfood Ltd.) is a five year old company producing wet food for cats and dogs. In 1992 the company had an average of approximately 160 employees and a turnover of DKK 125–130 million.

Løven Petfood has a sister company, Løven Agro Ltd., which produces dry animal food. The two companies have a joint sales department, a home market sales department, linked to Løven Agro in central Jutland, and a subsidiary company in Brussels which controls the main part of export sales.

Løven Petfood is located on two sites in Vrå, a small town in the northernmost part of Jutland, approximately 30 km from Ålborg the nearest large town. This is an area with a relatively high level of unemployment.

The company is situated in the centre of Vrå in buildings which date from the 1920 and were originally built to house the Cooperative Bacon Factory of Old Vrå. They were subsequently used for the production of tinned goods and animal foods. The actual production and can filling is carried out here; the Packaging, Stores and Sales Departments are located on another site which was taken over 18 months ago.

Products
The company produces wet food for cats and dogs; the food is packed into aluminium cans, the Can Flex cups. Dog food accounts for 20% of company products and 80% is cat food. The Can Flex cups are manufactured in 5–7 different sizes and the contents are produced in a number of varieties, e.g. lamb, fish, game, beef, shellfish, etc. The company believes it has found a niche in the form of a luxury product in Can Flex packages. The products are non-perishable with a shelf life of two years. 10–15% of the petfood produced is diet food which is produced especially for frail animals, these products are only sold through veterinary practices. The company uses a total of approximately 60 different recipes.

Markets
As mentioned above, 10–15% of the company's production is diet food sold through veterinary practices, mainly on the Danish market. Only 4% of the remaining food production is sold on the home market; the rest is exported to Europe, Japan, USA, Taiwan, amongst others. The company's sales policy is to obtain many, but small, market shares. The company offers dry as well as wet food in its range and frozen and tinned products are also included in the range. The MARS group is a leading competitor on the European market and there is considerable demand for products which imitate their range. All exports are under private-brand labels. The company produces for niche markets; its products are considered to be luxury ones and, therefore, fetch a slightly higher price. Nevertheless, competition has intensified and the market has become more of a buyer's market. Profit margins have fallen resulting in demands on both efficiency and product quality.

1.1.2 Company history, development and strategy

History
In 1987 the feedstuff factory, HVH-Cannery, in Vrå was purchased and taken over by the Løvens Kemiske Fabrik.

At that time the factory had between 20 and 25 employees and its turnover during the first 18 months was DKK 18 million. Since then, through radical rationalization, considerable investment and organizational adjustments, the company has developed into an export company with approximately 160 employees and a yearly turnover of over DKK 180 million. In 1991 and 1992 profits totalled DKK 3 million. From 1987 to 1992 capacity and productivity increased considerably; this is due, among other things, to investment in new machinery. In 1991 and 1992 a total of DKK 15 million per year was invested. Capacity increased by 70% and productivity by 30% last year. The company currently specializes in the production of wet food in aluminium cans

(Can Flex cups). Previously the company produced tinned food, deep frozen goods and sausages. During the last two years the company has concentrated its efforts to build up production techniques and a great deal of work has been done with regard to production planning and inventory control.

Development and strategy
In future the company is likely to choose to aim at more specialized products in the form of enriched petfoods.

The present range of diet products are considered as first generation products, the second generation, i.e. more medical, are underway and it is precisely in this field that Løvens Kemiske Fabrik possesses special expertise. It is anticipated that this will lead to demands on the company to control product contents and document their nutritional values. It has not yet been decided whether the company will seek ISO certification, but it has immediate plans for a comprehensive documentation of product quality requirements. Work is going on at present with a view to building up PC systems to facilitate production follow-up and thereby minimize waste. Rationalization and increased productivity will continue to be a feature of company strategy.

1.2 Technology, organization and quality

1.2.1 The manufacturing process and technology

Wet food production
A number of different by-products from fish, pigs, cattle, shellfish and game (e.g. lungs and liver) are used as raw materials in petfood production. A large amount of the raw materials are delivered fresh, a smaller part being delivered frozen. In addition, a number of supplementary materials are used. During the manufacturing process the raw materials are weighed, minced and, according to the recipe, mixed with other raw and supplementary materials. Flour and supplementary materials are weighed beforehand and mixed manually. The mincing and mixing is done in batches in isolated mincing and mixing machines. Transport and weighing are carried out manually. The finished forcemeat is filled into Can Flex cups and lids are put on. Filling is carried out by an automatic filling and sealing machine. The job involves feeding the machine and supervising the process. Laboratory employees check that the sealing process is in order. In the event of faults the machine is stopped and a technician is called in. The cups are heat treated in autoclaves and transported to the Packaging Department. Cleaning in the Production Department is carried out by external personnel.

Filling the cups
In the Packaging Department the cups are labelled, packed together in cardboard boxes and stacked on pallets. The pallets are then transported to the Finished Goods Store. The Packaging Department comprises six packaging lines, four of which are recently purchased, newly developed packaging and palleting lines. The lines are fully automatic and computerized and can be programmed for a number of different packaging and palleting tasks. This type of packaging line is staffed by three people, two of whom feed the machine with cups while the third watches and ensures optimum running of the line and is ready to intervene should a fault occur. Unskilled employees operate the packaging lines; new machines are run by technicians who also instruct their fellow employees in the operation of these machines. Lubrication and maintenance is carried out by the technician group and each shift running the machines is constantly staffed by one or two technicians. In addition to the six packaging lines there are shrinkwrap units, units for packaging goods together, and other less sophisticated packaging machines.

1.2.2 Company organization
A company organization chart is provided in Appendix 2. The Works Manager is responsible for the factory. The Technical and Production Departments are organized along similar lines. Each of the five Production Departments is led by a foreman and one or two assistants. The assistants are experienced employees recruited from the hourly-paid employees, their position was introduced approximately a year ago. The company aim is for a clear, distinct organization with explicit channels of command and clear distribution of responsibility and relatively specialized employees.

Work organization and employee categories
Due to equipment investment, the running-in and maintenance of machinery is becoming an increasingly important task. Minor repairs and adjustments were previously the responsibility of the foreman but with the introduction of sophisticated and expensive machinery only skilled technicians are permitted to carry out repairs. All shifts in the Packaging and Production Departments are staffed by one or two technicians per team. It is their job to install and run-in new machines, repair and maintain them and instruct employees in their operation. In addition, the technicians also lubricate and adjust the machines and repair defects.

The unskilled employees operate the machines, oversee production and stop it in the event of a fault occurring and call in a technician. The hourly paid employees have their own fixed working places in the Production and Packaging Departments. The principle of letting the employees

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alternate between the different workposts has been abandoned on account of the high cost and complexity of the machines involved. It is the intention to make individual employees experienced and responsible for specific machines. Production control and sampling analyses are the responsibility of laboratory technicians.

1.3 Human resources

Employment structure
In 1992 Løven petfood employed approximately 160 people, of these 40–50 were salaried employees. The following table provides a breakdown of employee distribution between departments and changes in employee numbers from 1991 to 1992.

Table 1.1

Department/group	1992	1991
Sales Department	10	10
Finance and Administration	20	24
Technical Department	10	3
Hourly paid employees	110	160
Production Development Department	3	1
Quality Control Department	6	1
Total	160	200

Groups with changed significance
The Technical Department expanded from three to four employees in 1987 to ten employees in 1992. This growth is related to the increased investment in machinery and the fact that the plant has become more sophisticated and costly, for example the new packaging lines.

Employee composition
There is a fairly even distribution with regard to age. In the past a high number of young people were employed but the ages are now more mixed. There is an even distribution between the sexes.

Educational background
The foremen have a mixed educational background, e.g. cook, dairyman, sausagemaker, metal worker. The Technical Department employees are skilled metal workers or engineers. Hourly paid employees are mainly unskilled and about 10–15 have some form of qualification. During the past two years there have been several examples of more people with higher educational backgrounds being employed than previously. For example, the company engaged a young engineer instead of a technician and a young chemical engineer instead of a laboratory technician.

Apprentices
It is company policy to employ apprentices and junior clerks. Currently 2 junior clerks, 1 laboratory technician apprentice, 1 technician apprentice and 2 data processing junior clerks are employed. Employment for all apprentices and junior clerks ceases three months after the completion of their apprenticeship.

Employee development and numbers
Each year the company adapts to seasonal production fluctuations by employing or dismissing hourly paid employees. Last year this involved 20 people. In addition to this, the number of hourly paid employees has decreased due to production rationalization, a development which is expected to continue. Employees in the Technical Department are an increasingly important group; within the last year their number has grown from three to ten. At the same time the number of salaried employees has increased with the expansion of the Production Development and Quality Control departments.

Merit rating of hourly paid employees
In connection with the fact that the company dismisses hourly paid employees and, additionally, is contemplating future changes in the remuneration system, the management has evolved a points system with a view to merit rating of employee skills. This system will be used by the foremen, for example, when the question of dismissals arises. The individual is assessed on the following eight factors:

- Quality, i.e. the level of correspondence between the finished work and requirements
- Knowledge of the work
- Performance
- Functional flexibility
- Initiative, capability and will to independently solve problems and implement work and tasks
- Planning, capability of carrying out work rationally and without waste of time
- Seniority (counted up to two years)
- Absence

The points are allocated by the foreman. The idea is to make it function so that the foreman can show it to the individual. The points system is seen as the start of a change in the remuneration system; pay will be divided into basic rate and skills bonuses.

Employee turnover
The company's declared objective is to achieve a stable and low turnover in employees. However, in connection with company modernization it has been necessary to dismiss both foremen and hourly paid employees. There are, in general, no recruitment problems either for seasonal or new permanent employees.

Recruitment and internal promotion
Greater importance is attached to experience (soft qualifications) and informal skills and attitudes than formal (hard) qualifications when hourly paid employees are recruited. In general, an even

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distribution in sex and age groups is sought. The company also employs older people, partly because this results in satisfaction and balance in the work teams and partly a workforce of stable employees. The Forcemeat Production Department's most important requirement ist experience within the framework of the food sector. In general, greater store is placed on attitudes than formal qualifications; in other words it is essential that all the employees get along together. Local labour is preferred because the company wants a stable workforce. It is not considered unusual for employees, either hourly paid or salaried, to recommend acquaintances who subsequently obtain employment in the company.

A military background is considered an asset because it is considered that it equates to discipline and responsibility. The points systems also highlights the requirements sought of the employees.

Local labour market
The company is located in an area with a relatively high unemployment rate. It has no difficulties in recruiting hourly paid, or other, employees. Seasonal workers are also easily recruited and, at present, the labour market in terms of engineers and qualified technicians is a buyers' market.

1.4 Working conditions and trade union/organization membership
Work is carried out in two shifts working five days a week. Almost everyone belongs to a union; unskilled female employees belong to KAD (the unskilled female workers' union) and the unskilled male employees to SID (the unskilled male workers' union), the technicians are members of the CO-Metal Trade Union. The company is a member of the Arbejdsgiverforeningen Dansk Industri (Danish Industry Employers' Association).

Remuneration is negotiated via a collective bargaining agreement, part of the pay is negotiated by decentralized wage negotiations. The remuneration system is based on straight hourly rates. Hourly rates for unskilled employees are DKK 80/hour with a shift work premium. Men and women receive equal pay. The company is contemplating the introduction of a basic remuneration and skill allowance system as the present system has no motivating effect; a points system relating to skills is being developed for this purpose.

2. Continuing vocational training
The following is a description of how employee training in relation to production is handled by the company.

2.1 Target groups and types of course
The one week's duration planned course described in this case study has been specially designed for the company's 50 Production Department employees and is the most comprehensive training activity to date. From 1991–1992 all foremen, one employee per shift and laboratory employees participated in a safety course. The one-week course is run by AMU and is mainly funded by Løven Petfood. The course is recommended by the Works Manager because it is instrumental in promoting increased awareness of safety within the company and, also, because of the highly regarded communication and collaboration aspects it provides. Other courses attended by employees relate to specific training concerning their work. For example, new employees in the Autoclave Department attended an autoclave course; a boiler attendant followed a certification course which was a requirement of the authorities and 4–5 people have learned to drive a lorry. Through these courses it has been ensured that a suitable number of employees meet their job requirements. Foremen and assistants have participated in courses relating to specific USA quality assurance requirements and a manager has undertaken a productivity course within the framework of the Danish Employers' Association. When new machines are purchased, the technicians instruct employees in the operation of the machines. The management consider that the company has a great need for general AMU courses, however, to be considered relevant it is deemed necessary for the course to be adapted to the company.

2.1.1 Planning and developing training
Admission to in-company training
The employees have the opportunity to apply for courses but, according to the shop steward, hourly paid employees are not very interested. The Works Manager selects participants for courses.

Works Council
The Works Council has discussed the management's ideas concerning remuneration related to skills, but as yet there are no plans for this to be developed and implemented.

Future plans
The company is contemplating relating skills to remuneration, as previously mentioned. It is examining the possibilities of training the foremen in management and cooperation skills. In addition, the company is following an experiment taking place in another company in northern Jutland where employees are attending a three week course within the framework of the AMU system; one course in quality assurance, one in quality control and another in productivity. If the experiment is successful the whole workforce might participate over the next two years. As the public authorities finance the main part of remuneration costs, the company is willing to make this up to the full rate.

2.2 Company training objectives and policy

The company has no formal training policy relating to production employees.

3. Description of a specific training programme

3.1 Overall description of programme: training activity

The described programme is a course of one week's duration for all production employees which has been specially developed for Løven Petfood.

3.2 Reasons for training programme

During its early years the company gave high priority to the technical aspects of the company; it now appears that the time has come to devote more attention to human resources. In the five years in which it has been owned by Løven Petfood, it has expanded considerably; the number of employees has risen from 25 to 160 and during this period a number of employees have been replaced. The company's workforce is mainly unskilled with no background in the food sector. According to the current Production Manager it has been quite difficult to change the employees' attitudes in relation to production hygiene. In general, company development has been characterized by major rationalization and increased productivity, a development which is expected to continue.

3.3 Initiative and decision

The idea for the training programme was conceived between the Production Manager and an external consultant (an acquaintance of the Production Manager). The course has been discussed with the Works Council and a major topic of this debate is how it would be possible to motivate the employees in relation to their jobs and increase their interest in their jobs in general. Within this context a skills bonus was also discussed. Although the shop stewards and employees were not involved in this initiative, neither in the planning nor the concrete elaboration of the course, they have been kept informed. There is no pronounced need for this course, according to the shop steward. In his opinion the company wants the employees to become more interested in their work and thus contribute to a reduction in quality costs. He referred to a Collective Agreement, two years ago, when, as an innovation, it was agreed that all employees were entitled to attend one week of training per year. In response to the question as to whether the employees had availed themselves of this right, the answer was negative. The training efforts of the company are generally considered to be satisfactory; the shop steward did not perceive any areas requiring continuing training.

3.4 Course objectives

The programme has several aims: the company wishes to raise product quality and reduce the number of production errors. An element of quality control is increased awareness by the employees of company operations. At the same time, this is an element in preliminary preparation for the introduction of a higher level of production follow-up. The management expects the employees to play an active part when production errors occur, e.g. to step in and stop production when they are sufficiently knowledgeable. For example, an increased understanding of hygiene will contribute to more careful handling of raw materials with regard to time and temperature conditions. Another company aim is to make employees more aware of the financial aspects of company management. From 1993 a monthly meeting will be held at which the results of the previous month's accounts will be presented. Furthermore, the management wants to raise the employees' self-confidence and self-knowledge with a view to obtaining a stable workforce. In addition, it is company policy to create an attractive work place although it is not one of the leading companies in terms of remuneration.

3.5 Training organization

Duration

In total five one week courses have been planned with approximately ten participants per group. One course is to be held each month from January to May 1993. This is a slack period for the company and, therefore, the course can be run without it becoming a problem to release the participants.

Access to courses

The course is offered to all 50 Production Department employees which means that it is virtually compulsory.

Target group

All employees associated with production are to participate in the course, i.e. hourly paid employees, foremen's assistants and laboratory technicians from the petfood manufacturing department. (note: Packaging Department and Stores employees are not included), it is anticipated that 50 employees will participate in the course.

Course development: content and form

The course contents have been developed by a team consisting of a consultant, a representative from an educational institute and the company Production Manager. The contents have, thus, been specially developed for the Løven Petfood target group. A detailed course programme can be found in Appendix 4.

The course comprises a vast number of subjects relating to company production such as raw materials, supplementary materials, forcemeat

production, meat chemistry, mechanical engineering, heat treatment, packaging and production development. Production hygiene, control systems and a comprehensive section on quality awareness also form part of the course.

It lasts one week and is held during the day during normal working hours. The programme is scheduled in one-hourly lessons ranging between group teaching, demonstrations and individual tasks. At the end of the course there is a test.

The trainees receive a certificate confirming their participation in the course. Tuition is mainly handled by the external consultant and a teacher from the Danish Meat Trade College in Roskilde.

The company has purposely chosen external trainers. Their own employees only provide instruction on a limited scale. Furthermore, experts have been invited to provide training on several subjects, e.g. employees from packaging and machinery suppliers.

Cost of training

The total cost of training amounts to DKK 200,000; this covers development costs and the assistance of the consultant and teachers, and remuneration for the course participants. The course is held on company premises and all expenses are borne by the company; no public subsidies are received. The employees receive their normal remuneration during their participation in the course.

4. Training assessment

At the time of writing this report, the training course had not yet taken place, evaluation was therefore not possible. Thus, it is not possible to make an evaluation at present.

5. Summary

Løven Petfood A/S is characterized by growth, considerable rationalization and increased productivity. Production in Vrå has been concentrated on one specific production process. A number of investments have been made in production machinery, particularly in the Packaging Department, which have resulted in a reduction in the number of employees. It is essential that the factory runs continuously, therefore, there has been a reorganization of the workforce to integrate technically qualified employees. In addition it is essential that the employees operating and controlling the machines have a sense of responsibility. Further rationalization, particularly in the Packaging Department, is likely with additional job losses.

The course described in the case study is aimed at employees in the Production Department which has not been automated to the same extent.

The achievement of rationalization and increased productivity objectives are sought through a specialized division of the workforce – employees have fixed workposts and do not alternate between jobs.

Tasks requiring a higher degree of know-how and/or training are carried out by specialists; for example:

Production control is undertaken by laboratory technicians, machine adjustments by technicians and planning by the foremen's assistants, etc. These tasks are carried out by employees with formal training whilst employees in production and supervisors are to a large extent unskilled. The company's merit rating points system highlights what is important. It is essential that the hourly paid employees make a rational and reliable input and are able to carry out their work independently and satisfactorily in order to avoid unnecessary waste and costs.

The training course appears to be appropriate as the employees are mainly unskilled and many of them are relatively new to the company. By instructing the employees in specific production processes and conditions they are likely to obtain the knowledge and background to enable them to carry out their daily work correctly, detect production faults and take the necessary steps.

The general assumption is that the shop stewards and employees are not interested in these courses or training matters in general.

The nature of the work does not promote a sense of need for training; courses are not considered necessary to carry out jobs. Observations in the company support this and it is further supported by the fact that management prefer courses specifically designed for the company; it was stressed by several people that the company would like to see more active, participative attitudes.

In addition to employees possessing the relevant knowledge and background, attitudes and motivation are also important and the course may play a useful role in this respect although other factors may also influence this. One of these is the fact that the company is contemplating the introduction of a more stimulating remuneration system with, for instance, allowances based on skills.

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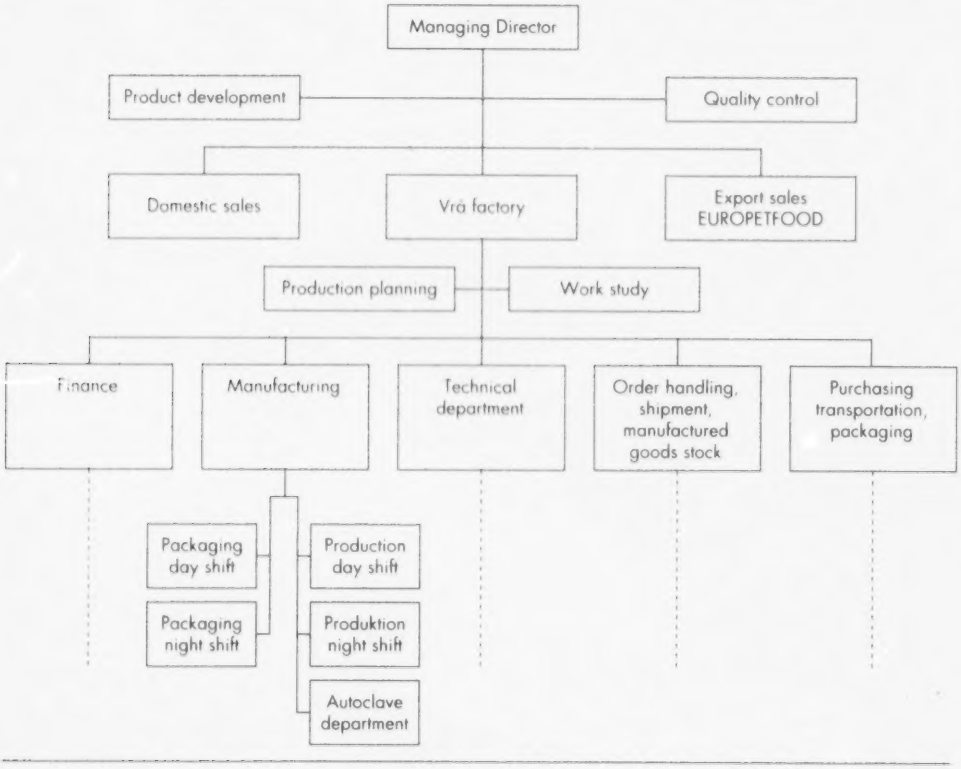
APPENDIX 1

The Løven Petfood A/S case study is based on interviews with the following:

Works Manager	–	Leif Kuno Jensen
Production Development Manager	–	Leif Madsen
Head of Production Department	–	Poul Jordansen
Shop steward for unskilled male employees	–	Frank Høj
Production employee	–	Dorte Nielsen

APPENDIX 2

Løven Petfood A/S – Organization chart



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APPENDIX 3

2.

Company data

Company overview

1. Current total sales — DKK 180 million
2. Current total payroll — classified information
3. Current value added — DKK 3 million

Employment/human resources

4. Current total workforce (1992)

Salaried employees	40–50
Hourly paid unskilled employees	110
Technicians	8
TOTAL:	160

5. Permanent employees, 1988 and 1992 figures

	1991	1992
Salaried employees	34	42
Hourly paid unskilled employees	160	110
Technicians	1	8
TOTAL:	200	160

6. Temporary employees: information not available

7. Arrivals and departures during last three years: information not available

8. Remuneration policy:

With respect to	
The local labour market	lower
The sector as a whole	lower

9. Total annual cost of continuing vocaticnal training: information not available

10. Percentage of total 1992 training expenses subsidized by various public institutions: information not available

11. Number of employees participating in the company's 1992 training programme: information not available

APPENDIX 4

Schedule for training course

	Monday	Tuesday	Wednesday	Thursday	Friday
07.00	Welcome Materials Course reading	Minced meat production	Calculation	Quality awareness	Internal control system
07.50	Break Raw materials fresh, frozen	Minced meat production flow	Analyses	Quality awareness	Internal control system
08.50	Break Raw materials types, hygiene	Recipe reading	Law	Quality awareness	Product development
09.50	Break Raw materials task	Minced meat task	Task	Quality awareness	Final test
10.50	Break Meat chemistry	Mechanical engineering	Quality awareness	Test	Conclusion
11.50	Lunch Ancillary materials	Heat treatment	Quality awareness	Production hygiene	
13.20	Ancillary materials function	Packing	Quality awareness	Production hygiene	
14.20	Ancillary materials function	Packing control	Quality awareness	Complaints	

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2. NR. VIUM MEJERI

The case study is based on interviews held with key company personnel on 9th December 1992 and carried out by Jette Bang Jensen MA.

Introduction
MD Foods is Denmark's largest dairy company and is centralizing its production of self-pressed cheese with irregular holes on the Nr. Vium Dairy in Western Jutland.

The dairy has, therefore, been enlarged, production equipment renewed and during the last two years progressive production transfer has taken place.

The number of employees has increased considerably and there is still a requirement for hourly paid employees.

This case study comprises two interlinked training programmes.

The aim of one is to both generally and technically qualify three teams of 14 unskilled people for employment in the Nr. Vium Dairy. This will enable the release of existing unskilled employees to participate in a general adult training course.

A distinguishing feature of the training programmes is that they result from a joint project developed between the company, the local public labour exchange, the unions and three different educational institutions.

1. Company overview

1.1 General description of the company

1.1.1 General company data
The Nr. Vium Dairy is the largest producer of ordinary yellow cheese, employing over 200 people and handling 230,000 tons of raw milk. The company is located in Videbæk, a small town in the mid-west Jutland district of Videbæk, approximately 20km from Herning, the nearest large city. It is situated in a large milk producing area which means that raw material transport routes are relatively short and in an area with some dairy manufacturing. The Nr. Vium Dairy is part of MD Foods, one of the two largest dairy companies in Denmark. MD Foods is a cooperative owned by approximately 12,000 members, all of whom are milk producers. Nr. Vium Dairy is attached to MD Foods' cheese division which is made up of a number of production units characterized by a high degree of division of labour. Thus, the Nr. Vium Dairy exclusively produces ordinary yellow cheese, another unit produces feta cheese, a third unit produces cream cheese, etc.

The Sales, Marketing and Development Departments are centralized in MD Foods' head office at Aarhus, approximately 100km from Videbæk, where the Human Resources and Training Departments are also located. Transport is planned at the Nr. Vium Dairy but centrally organized by MD Foods' Transport Division.

Raw material
The dairy receives milk seven days a week from approximately 1,000 milk producing farms in West Jutland; the milk is collected daily by MD Foods' own tankers.

Products
The company produces about 25,000 tons of ordinary yellow cheese each year; this is in the form of two traditional Danish cheeses: Esrum and Havarti. These cheeses can be produced, on the whole, using the same production process and apparatus. The two types of cheese are produced with different fat content and some of the cheese has different spices added. The cheeses are partly made in cylindrical form and partly in square block and undergo different kinds of ripening processes. They are cut up into retail pieces of between 200 g to 4.2kg, wrapped in foil and labelled. Esrum cheese was previously sold as whole cheeses but today, approximately half is sold cut and packed for sale on supermarket shelves. Taking into account all the cheese varieties, the dairy produces a total of 500 items/trademarks. A recent rationalization in the number of products from one of the varieties has been carried out and the number of items/trademarks has been reduced.

Market
60% of MD Foods' total production of ordinary yellow cheese is sold to the worldwide export market, the principal markets being Germany, the United States and Italy. MD Foods generally has a small share of the large foreign markets which typically varies from 1–2% to 8–9%. Foreign consumption patterns for self-pressed cheese with irregular holes are that national cheeses are eaten regularly and imported yellow cheese considered as a speciality cheese. There is an increasing consumer trend toward openness to new products. Approximately 40% of MD Foods' production of this cheese is sold on the Danish market where it holds a leading position with a 60–80% market share. The company's direct customers are primarily the retail trade, major foreign supermarkets being the main export customers. There is a general trend to change from the sale of whole cheeses to prepacked shelf-ready products.

Marketing policy
MD Foods sells cheese under its own trademark and under private brand names. There is an increasing trend for supermarket chains to demand private brand names. In relation to the retail trade, a substantial advantage is a high quality, broad range of goods and high degree of flexibility in relation to consumer demands for packaging, bar codes, etc. The Single Market is

not expected to have any direct influence on the company but the current GATT negotiations, no matter what the concrete result will be, are expected to increase competition in the long run. Since ordinary yellow cheese is an important, price competitive product it will be necessary to rationalize and improve productivity in order to keep abreast of international competition. A major competition parameter relates to final consumer demands for high and uniform quality. It is planned for the Nr. Vium Dairy to achieve ISO 9000 certification during 1993; one of MD Foods' cheese companies has already obtained certification and others are due to follow.

1.1.2 Company history, development and strategy

History

There has been a Nr. Vium dairy since 1907 at which time it was one of approximately 1,600 traditional dairies in Denmark. In 1962 the dairy was purchased by the Høng Group in connection with the drive for cattle to be moved towards the west of Denmark. The present dairy was built in 1963 and extended in 1968. In 1970 the dairy became a member of the newly formed MD which was interested in the dairy because of its sales companies and outlets. Over the years a regular increase in production has taken place and during the 1970s, MD centralized cheese production and Nr. Vium became a producer of Esrum cheese.

The Nr. Vium dairy is expanding

MD Foods' policy is to unify the production of special cheese at the Nr. Vium Dairy. These plans took shape during the 1980s and a final decision was made in 1990. Physical enlargement of the dairy commenced in December 1990, and between 1991–1992 the dairy area has doubled from 8,500 sq.m. to 17,000 sq.m. Production of the round Havarti cream cheese was transferred in January 1991, and Havarti production from the MD Foods' Brørup Dairy near Ribe will be transferred in January 1993. The centralization and extension of cheese production should be considered in the light of increasing international and price competition. Rationalization and productivity improvements are promoted through the specialization of production units. At the same time, there is a need for large production units in order to supply the necessary quantities to international supermarket chains. Simultaneously, on the retail customer's side, there are demands for high flexibility regarding packaging and product marks, which require a high level of adaptability in the dairy's cutting and packaging divisions. Approximately half of Nr. Vium Dairy's products are consumer-packed today.

1.2 Technology, organization and qualification requirements

The production process and technology

Given that a large part of the company is newly built, the production equipment consists mainly of new technology. In areas where older equipment is used, the electronic equipment has been improved. The two main elements in cheese production are milk treatment and cheese manufacture.

Milk treatment

When the raw milk is received, it is cooled and treated so that the cream can be separated, fat standardized and pasteurized so that is ready for the cheese production process. The milk treatment is a fully automatic process which takes place in closed tubes and systems controlled by PLC control systems.

Cheese production and curing

Rennet and various chemicals are added to the finished milk. The formed cheese is salted and cured. This process is also automatic and controlled by PLC. A few process plants are controlled by decentralized PLC control systems but, in general, the entire plant can be operated by displays and keyboards at three different points in production (multi-user system). The cleaning processes are also automatically controlled. The cheeses are cured in climatically controlled stocks. During curing the cheeses must be attended to and handled according to the ripening process of the cheeses and the climatic conditions controlled. The turning of the cheeses is carried out manually.

Cutting and packaging

The finished, cured cheeses are rinsed, cut up, packed in foil, weighed, labelled and packed ready for despatch. For some cheeses the final curing takes place in the retail packaging. Six to seven years ago a large part of the work was done manually, today the entire packaging process is mechanical, the manual work consists of feeding and removing cheeses from the packaging machines. The latest packaging lines are computer controlled and weighing is by automatic weighing machine.

Production process

The first stage of the production process, i.e. treatment of the milk and cheese production, is normally carried out as a mass production process. Cutting and packaging are carried out upon receipt of a customer order. Cheese sales fluctuate during the year; on a weekly basis production can vary between 30 and 130 tons of cheese.

1.2.2 Company organization

See Appendix 2 for organization chart.

The organization of the dairy is based on the following functions: milk treatment, cheese production, cutting, packaging, despatch and the

engineering workshop. Furthermore, there is a project organized structure which handles the transfer and establishment of new production to the dairy. Each department at level 2 in the organization is divided into sub-divisions which, in most cases, are led by an hourly paid team leader or foreman.

In the Packaging Department there is a foreman, per division, and a joint foreman. Each foreman has between 15 and 20 employees under him. The Packaging Department Manager expects the organization will level out and the foremen will become more familiar with the products and product planning. He also expects the foremen will ensure employees are placed in the correct positions, and anticipates that there will be a need for employees to alternate between the positions.

Milk treatment
Only a limited number of employees are involved in milk treatment due to the level of automation. Large quantities of milk are handled and the quality has to be supervised and processes controlled. The department is staffed, around the clock, by a total of six dairymen and dairy apprentices. The department head is a trained dairy technician; in addition to supervising the milk treatment process he also plans the milk collection with 21 drivers.

Cheese production
The cheese master heads the department and is a trained dairy technician. Work in this department covers the control of the cheese production process and is carried out by dairymen and/or dairy technicians. Manual tasks, such as turning the cheeses, driving trucks, etc., are carried out by unskilled employees.

Packaging
The Cutting and Packaging Departments account for the largest number of employees. The department is divided into four packaging rooms and a rinsing room with a total of 14 packaging lines and 1 cheese rinsing line, each with their own foreman. The packaging lines are mainly staffed by unskilled employees, 71 of whom are female and 50 male.

Machinery Department
This department is managed by the Chief Engineer who has three technicians and one carpenter under him. The reason for the department being so small is that servicing and repairs are carried out by private companies, therefore, one of the main tasks is the ordering of external assistance, partly from machine suppliers and partly from local workmen. The machines are special purpose machines and the knowledge associated with them is easier to buy-in than maintain as an integral feature of the dairy. Current developments mean that there is an increasing need for more knowledge of electronics in the Machinery Department.

General
The dairy thus employs both skilled and unskilled employees. The training programme described in this case study is based on the training of future and existing unskilled employees. Some of these employees work in the cheese Production Department but the main number are employed in the Cutting and Packaging Departments. Therefore, a more thorough description of work tasks and quality demands are required for this area.

An unskilled employee's tasks in the Cutting and Packaging Departments consist of the following:

In the morning the machines have to be assembled and disinfected following prior cleaning. The packaging line is then started, foil is loaded and the number of cuts, sealing temperature and tightening of the foil, etc. have to be regulated. When the line is running the packaging machines have to be fed and the cheeses removed and packed ready for transport.

Cleaning is an important task; the packaging machines and conveyor belts have to be cleaned and disinfected at each break, i.e. 5 times during a working shift and 18 times a day.

Automatic weighing machines form part of the new equipment on the packaging lines. The employee's job is to key in the labels incorporating price, durability and brand name information etc. This is done by calling up built-in programmes or, in the case of new products, the employee keys in and supplies the labels with the appropriate information. Correct labelling is an important product parameter. In order for the labels to be formulated it is essential that the system, manual display and commands are handled accurately and in the correct order.

Development of the packaging lines, in the form of more machines, requires more accuracy and less manual labour. There are computer controlled lines with different programmes which require special training for each line. At the same time, there is an increasing need for the employees to rotate amongst the lines in order to fulfil requirements for multi-skilling and optimal utilization of resources, including human. In the Packaging Department there is a move towards greater individual recording of production, for instance productivity control is recorded individually. The future ISO 9000 certification is expected to make further demands on new employees.

Qualification requirements
A basic knowledge and understanding of the importance of hygiene and cleaning in a dairy are essential requirements. The work today requires a strong physique although the physical aspect of the work is now disappearing; increased understanding of EDP and its operation, for example the

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automatic weighing machines, is a further requirement. Technical ability and understanding are necessary in order to be able to assemble and lubricate the machines. In addition, demands on literary skills are increasing as the employee has to complete production reports, etc. and has to participate in the declaration process. Furthermore, the head of the dairy attaches great importance to the employees' ability to work independently and as a team.

Human resources

Workforce structure – In December 1992 the Nr. Vium Dairy employed a total of 16 middle managers and 230 hourly paid employees.

Management	
Head of dairy	1
Managers and department heads	9
Administration	6
Hourly paid employees	
Skilled dairymen (of whom 8 act as foremen)	22
Dairy apprentices	12
Unskilled employees	157
Unskilled trainees	14
Skilled artisans	4
Drivers/mechanics	21

As shown in the above table, unskilled employees account for more than two-thirds (171) of the total workforce. The employees are characterized as first generation manufacturing workers in the dairy sector, a traditional agricultural area. The head of the dairy considers this is a strong point of particular importance for work attitude, e.g. absence owing to illness, stability and motivation towards flexibility. Scheduling the extra work in peak production periods is covered by weekend and overtime working. The company finds it difficult to maintain a reserve workforce to meet these situations.

Employee composition

The skilled dairymen are mainly men although there are female apprentices. The majority of the unskilled employees are female, especially in the Packaging Department. The company would like to alter this to a more even distribution, partly due to the fact that the work is physically demanding. A major part of the workforce is young people, recently recruited, due to the extension of the dairy. The average age of unskilled employees is 30, although the drivers and maintenance employees are older and the management group is more evenly divided.

Employee turnover

Employee turnover is so small that it cannot be measured as a percentage. The fact that the company has a comparatively steady workforce is linked to its location. There have been no dismissals during the last five years.

Employee development and numbers

The expansion of the dairy has led to a considerable increase in employee numbers. The table below shows the change between summer 1991 and Christmas 1992:

Employee group	Summer 1991	Christmas 1992
Hourly paid employees	88	224 + 14 trainees
Middle managers	12	16
Drivers	22	22

The workforce has, thus, increased by 4 middle managers and 136 hourly paid employees, plus 14 trainees. 5 or 6 of the 136 hourly paid employees are trained dairymen, the rest are unskilled. In January 1993, when all planned production is transferred to the dairy, a further requirement for 20 to 30 hourly paid employees is anticipated. After that time no further increase is expected.

Recruitment policy

All employees at the dairies which have been closed have been offered employment at the Nr. Vium Dairy, but only a few have accepted the offer. The last production unit will be transferred from the Brørup Dairy near Ribe (100 km from Videbæk) and another is located in Vejle (65 km from the dairy). Very few employees have opted to move to Nr. Vium. The company describes the hourly paid employees as being of limited geographical mobility. The location of the dairy and the fact that it operates night and day mean that it is necessary for the employees to have their own transport. In addition, the head of the dairy has given examples of potential employees who have calculated that their remuneration less travelling costs is no more than unemployment benefit. The fact that a large number of the unskilled employees are female is considered to be an important factor relating to geographical mobility. The company would like to employ skilled dairymen, although this is not necessary, for example, in the Packaging Department, because their attitude and knowledge of hygiene, for instance, permeate throughout the workforce. There is, however, a shortfall in the supply of dairymen, partly because they are able to find employment in other sectors within the food sector where remuneration is often higher. The Videbæk district has an unemployment level of approximately 8%; the head of the dairy does not consider this is large enough to provide a recruitment base, as a proportion of the unemployed are, in actual fact, not considered to be available on the labour market.

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Recruitment
The head of the dairy is seeking a reasonable age group distribution amongst the workforce and as the company previously had a large number of older employees, preference is given to new recruits between 18 and 35 years of age. Similarly, there is a predominance of unskilled female employees and, because of the need for physical strength in the dairy jobs, more male employees are required. Applicants with some form of previous training, even if it is not specifically related to the dairy sector, are preferred. Former slaughterhouse employees are not recruited due to that sector's tradition of piece-work and adjusting productivity to remuneration levels which do not fit into the dairy's hourly paid system. The dairy prefers to employ people from Western Jutland due to their sound attitudes: they are often from farming families which has given them a somewhat different approach to work to that of townsmen. Furthermore, the company wants to employ local people because this helps maintain a stable workforce. The Packaging Department Manager stressed the need for a good physique, flexibility in working hours and attention to personal hygiene in addition to experience with machines.

Working conditions and trade union membership
The dairy operates night and day; day shifts are, however, often longer than night shifts. The dairy belongs to the Dairy Employers' Association. Unskilled male employees belong to SID (unskilled male workers' union) and female employees to KAD (unskilled women workers' union), the dairymen are organized in their own union. The various parties have agreed on a contractual wage; unskilled employees are paid on a fixed hourly rate of DKK 88.00. There is no piece-work contract or bonus arrangement, but there is pre-arranged payment for work after normal working hours. The social partners negotiate remuneration rates. The dairymen are paid DKK 95.00 per hour and if they act as foremen they receive an extra bonus. Managerial level employees are employed middle managers and receive a fixed monthly rate which is negotiated individually. This means that the entire dairy sector has the same fixed remuneration levels for hourly paid employees. Company remuneration levels for unskilled employees are below average, in comparison to local levels.

2. Continuing vocational training

2.1 Company training policy
The Nr. Vium Dairy does not have a formal training policy for hourly paid employees but the following illustrates central elements by which the company handles training. Which groups of employees are trained? From departmental heads to the top level of the company, records are maintained of all courses attended by each individual; from foremen down this information is not recorded although MD Foods plans to implement this. Company managers attend approximately two courses per year.

With regard to hourly paid employees there is no information recorded but the following training programmes should be noted:

The training programme described in this case study aims at upgrading future employees' skills in relation to the expansion of the dairy. At present this programme involves three classes of 14 unskilled employees. In January 1992 two classes, each of 12 unskilled employees, participated in EDP and hygiene classes. The head of the Packaging Department estimates that approximately 30 unskilled employees from his department have participated in courses this year, covering subjects such as lorry driver's licence, cleaning, hygiene and EDP. Normally the number of Packaging Department employees participating in courses will be between 10–12 per year, the large attendance this year was due to the expansion.

Type of course
The company generally makes use of dairy sector courses provided by AMU. There are a number of courses aimed at skilled dairymen and unskilled dairy sector employees. Courses for unskilled employees include two basic courses, each lasting 14 days, and a number of week long courses with more specialized content. The public authorities cover the training expenses and a large proportion of participants' remuneration for these AMU courses. The courses are held at The Technical Dairy School in Funen, approximately 200 km from the dairy.

Course access and motivation
The management encourages hourly paid employees to participate in courses each year when AMU publish their annual course programme. However, they find that the employees lack motivation and do not seem to feel the need for training. The departmental head's success in attracting participation hinges on his skill in integrating courses with the work programme and the holiday schedule. A union representative for the women's union stated that motivation is not great among the unskilled female employees and that she is not aware of any employee being refused permission to participate in a course if they so wished. The fact that courses are held at Funen is put forward as an obstacle for women attending as they do not wish to be away from home for several days at a time. The union representative considers that the company encourages employees to participate in courses but believes that the company should direct their efforts towards making the employees aware of the importance of increasing motivation and training for the future. On being questioned

about which courses were important, the union representative replied that there is a need for training in communication, planning, interaction and cooperation. Annual interviews are held with the supervisors and managers during which the question of training arises. The practical starting point for selecting training courses is MD Foods' training catalogue which details all relevant courses. The Training Department intends to implement interviews for hourly paid employees. By doing so they hope to demonstrate that these employees are an important company resource and improve employee motivation and skill awareness.

Training Committee
There is no special forum in the company at which training matters are discussed. Should a need for training arise it is discussed at the Works Council, on which both the management and employees are represented. The head of the dairy considers it is more practical and less time consuming for all cooperation issues to be covered by one committee.

MD Foods' Training Department
MD Foods has a central Human Resources and Training Department with a total of 10 employees, four of whom are involved with development and training. The department examines the range of courses available and issues a catalogue for use by all the dairies within the company. This catalogue mainly covers managerial level courses. The central Training Department investigates training requirements within MD Foods by comparing the overall results of the managerial level annual interviews with the training needs expressed by the Works Managers and overall company strategy. The Training Department is currently working on a comprehensive management development programme as it is considered that the dairy management require more extensive managerial skills in addition to knowledge of the product, production techniques and economics. In future the management's main task will be to instruct and motivate the employees and to act as an intermediary during reorganization. It is important that the hourly paid employees consider product quality and, as cooperation and organization models change, there will be a shift in skill requirements.

Cost of training
Training expenses are met by the individual production unit in MD Foods. The head of the Nr. Vium Dairy states that training expenses for the dairy are comparatively low, this is related to the fact that AMU and VUS (public funded programmes for adult training) courses are used for both skilled and unskilled employees and thus, training expenses and a major part of remuneration costs are met. Training costs for supervisory level employees were, on average, DKK 8,000.00/per participant in 1992.

3. Description of a specific training programme

3.1 General description of training programme
The programme consists of two training courses linked together; one involves the training of three courses of 14 unemployed local people for employment in the dairy, the other is aimed at offering existing unskilled employees the opportunity to improve their education. 41 employees have enrolled in the six week course. The link between the courses is made by offering the trained unemployed people either permanent or temporary employment in order to release existing employees to participate in courses.

3.2 Reasons for training programme
In recent years Nr. Vium Dairy has carried out an extensive expansion programme and production has been transferred from other dairies and further production will be transferred in January 1993. Employee numbers have consequently increased and there is further need for more, particularly hourly paid, employees. However, the dairy is unable to rely on employees from the closed dairies transferring to Nr. Vium. There is a lack of skilled dairymen on the local labour market although the unemployment rate is between 7–8%. The dairy is, therefore, faced with recruiting 20–30 unskilled people with no experience in the dairy sector. The shop steward drew attention to a publicly funded scheme which has recently been introduced in Denmark to provide basic general training for adults with a low educational level. With the expansion of the dairy new technology has been introduced and this development has led to more demands for employee skills. At the same time the dairy is planning to achieve ISO 9000 certification and implement a total quality management scheme; these will also make additional demands on the employees.

Both the management and union representatives are aware that there will be increasing demands on employee skills in the future and that there is a lack of motivation on the part of the hourly paid employees with respect to training. The Danish trade unions and employment services are currently aware of the necessity for temporary employees, particularly if unskilled employees are to be released by their companies to participate in retraining. A public pool has, therefore, been created to overcome these problems.

3.3 Initiative and decision-making process
The local employment service held a conference in January 1992 relating to the introduction of public funded general training for adults with a low education level at which they advised on training opportunities. The conference was also aimed at job rotation. The company devised a questionnaire for the unskilled employees in order to

establish whether the employees were interested in general adult training and in what particular subjects. From the outset it was emphasized that training could take place during working hours. The study revealed that approximately one-third of the employees were interested and subjects included Danish, EDP and languages. The majority of the interested employees were the younger women. Those who did not display a great deal of interest considered that as they had been employed by the company for several years they had job experience and, therefore, did not need additional training. If existing employees were to participate in long-term training courses the company would need to engage temporary staff. From the beginning discussions revolved around alternance arrangements and the trade unions and employment services came up with the idea of training the unemployed to provide a temporary workforce.

A series of meetings were held between the dairy, the local employment service, trade unions and local training departments. In the meantime it became apparent that the possibility of employees transferring to Nr. Vium from the closed dairies was very limited. The initial aim of the training programme was, therefore changed; the main goal was then to maintain the company workforce followed by upgrading the skills of existing employees.

3.4 Course objectives and expectations

Head of dairy:
The head of the dairy anticipates the programme will solve problems concerning the need for new employees and will make it easier to integrate a large number of new employees. Furthermore, the programme is expected to have a positive effect on the dairy which will help to interest existing employees in training.

It is hoped that the 41 employees who have enrolled on the 6 week adult training course will want to continue for the additional 8 weeks offered by the scheme. In addition it is hoped to extend the scheme with more sector related subjects. The technical college for the sector could do this by holding courses in the dairy in order to overcome the obstacle of trainees having to travel to Funen to participate in a course. Moreover, it is anticipated that it will become easier to involve employees in the future ISO 9000 certification process as this makes certain stipulations regarding provision of training plans. At the same time, the dairy is planning to implement a total quality management process which includes training plans for supervisors who would be responsible for training other employees on-the-job. This process, too, is expected to become easier. The firm expectation is that there will be fewer production faults, for example labelling mistakes, despatch errors.

It is also anticipated that when an employees knows what he is looking for it will be possible to achieve higher productivity without increasing the work rate.

Union representatives:
The female union representative anticipates that 41 employees will be generally upgraded but she also hopes that the project will increase the overall interest in training amongst the employees as she considers this will be of importance for the future.

Specific training objectives
The aim of the training programme is to upgrade the general and vocational skills of 3 classes, each comprising 14 unemployed people to enable them to be employed in the Nr. Vium Dairy. This will subsequently make it possible to release existing employees to participate in the VUS scheme.

3.5 Training programme

Upgrading of unemployed people
The course lasts for 17 weeks, during which the first 13 weeks are spent at various training institutions and the last 4 in the dairy. It comprises a period on general qualifications, a period of vocational training and one month's practical experience in the Nr. Vium Dairy.

General training
This aspect of the course comprises four weeks of general training for adults which is aimed at employment conditions in the company, but the main aim is to provide participants with the opportunity to:

- recognize their own situation;
- recognize their own potential and resources;
- acquire the necessary general skills;
- acquire an understanding of the company culture;
- acquire an understanding of the work and the connection between family and working life;

Description of course

4 weeks	1 week	3 weeks	5 weeks	4 weeks
Training of adults	Introduction	Stock and the dairy sector	Introduction to dairy sector control	Practical experience at Nr. Vium Dairy
Training centre for adults	Hostebro Technical College	AMU Centre	Holstebro Technical College	Nr. Vium Dairy

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- develop the ability for adaptation and cooperation;

The course contents are based on the following subjects:
- Danish, communication, family and occupational psychology and personality development
- EDP in relation to society
- Techniques, environment and people
- Mathematics, family and company economics.

Vocational training
The vocational part of the course consists of two main areas: stock room duties (3 weeks) and introduction to the dairy sector (5 weeks). The 3 week course covers stock, internal transport, stock organization and stock control. The main aim of the 5 week course is to provide participants with:
- a basic knowledge and understanding of the sector and the specific company;
- increased knowledge of special conditions relating to working with foodstuffs in general and the dairy sector in particular.

The course content comprises the following subjects:
- sector knowledge
- company knowledge
- cleaning and hygiene
- chemical and physical processes at the dairy
- bacteriology
- composition of milk
- dairy production
- cheese production
- technology/understanding technology
- quality/quality awareness

Practical training
The practical part of the course comprises 4 weeks of practical experience in the Nr. Vium Dairy. This is arranged in such a way that during the 4 weeks the participant alternates between a number of workposts. The participant interviewed had, therefore, alternated between 9 workposts during the 4 weeks, after which he was able to fill a job.

3.6 Training organization

Cooperation project
The programme is a cooperation project between the Nr. Vium Dairy, the respective trade unions, the employment service and three different training institutions. The overall project is coordinated by the employment service; one of the training institutions, with knowledge of the dairy sector, is responsible for the management of the project and the coordination of course contents. The training institutions propose and develop the training course content following discussions with the head of the dairy. A large proportion of the course content is made up of courses offered by the institutions and specifically adapted to this particular training programme. The course originally only contained one week of practical work but in accordance with company wishes this was extended to four weeks. It therefore provides the company with the opportunity to get to know the individuals before they are employed.

Unemployed people's access to the training programme
The dairy selected participants for the course on the basis of applications received via the employment service from interested, unemployed individuals together with details regarding age, sex, previous employment and educational background.

Employment of course participants
Recruitment will be effected upon completion of the practical section of the course. The first class is due to complete their course at the end of December and will be advised of their employment in mid-January. At the same time the dairy will be taking over the last of the external production. The head of the Packaging Department, who will be involved in the recruitment of employees for his own department, currently anticipates that, with a few exceptions, everyone will be employed. Recruitment criteria are described in Section 1.3.

Planned rotation
14 participants have been planned for each of the three classes. It is envisaged that there will be employment for the participants from the first two classes and that those from the third class will operate as a reserve workforce. This will enable the existing unskilled employees to attend the adult training course planned for March.

When these employees return to the company on completion of their course it is anticipated that there will be a need for temporary employees to cover the summer holiday period. At the end of the summer it is hoped that some of the course participants will enrol for a further 8 week course (public funding for adult training is granted for a total of 14 weeks).

Training costs
The Industrial Council's (public authority) fund to assist bottleneck problems financed the training courses for unemployed people. MD Foods incurred no expenses for the project, course costs being borne by the authorities. The unemployed course participants receive unemployment benefit at the same rate during theoretical and practical training.

41 unskilled employees have enrolled for the 6 week adult training course. This course will take place during working hours and is currently at the planning stage. The course content will cover general training in Danish, arithmetic and EDP. The training course costs and a major proportion of the participants' remuneration will be covered

by the public funded scheme for adult training. The public fund only covers 80% of the daily rate (DKK 67.00) and the employees and union representatives are seeking full remuneration, this has yet to be agreed but the union representative is hopeful that they will be successful and obtain full remuneration during the 6 weeks of the course. During their attendance on the course the employees jobs are undertaken by the newly trained unemployed individuals.

The union representative is seeking a formal agreement on training to guarantee the employees will be able to return to their old jobs after completing the course. All existing unskilled employees have been offered the opportunity to take part in the course which commences in March.

4. Training assessment

Management assessment

The head of the dairy initially suggested that more than the three classes of 14 unemployed people should be training at once, for instance 100 in all. There are 5 dairies in the Vidbæk district and there are dairy farming and food sector companies in neighbouring districts and it is estimated that any surplus of trained unemployed people would be absorbed into the West Jutland food sector.

The head of the Packaging and Cutting Departments considers that the upgrading of unemployed people has worked well. The course participants, who are currently undertaking the practical part of their course, show an understanding of hygiene and the manufactured product. An overall expression, throughout the company, of satisfaction with the course participants demonstrates that they have achieved a general understanding of the production processes. Furthermore, the 4 weeks practical training in the dairy have provided an adequate period to get to know the individual participants before the actual recruitment process takes place.

It is essential to note that during the practical period the trainees have not been filling an actual job. In retrospect it is considered that it might have been useful to interview the unemployed individual with regard to the application for participation in the course. However this would have been a time consuming exercise in a tight work schedule.

The female union representative

It is felt that the newly recruited employees actually have a far better training background that the existing employees. The union representative feels the existing employees should have received better information about the new initiative and expressed a wish for the introduction of a planned training programme for the unskilled employees in order to overcome the fears that the unemployed trainees might replace the existing employees. The union representative hopes that the 41 employees who have enrolled for the 6 week adult training course will continue on to the additional training course.

An unemployed course participant

The central element for the unemployed people is the fact that most of them have the prospect of a job in the near future. This has been the main incentive for enrolling and participating in the training programme.

Those who are employed in the dairy state that they could have undertaken the work without training but that it is useful to have learned something about hygiene and cleaning. They have also learned about the cheese production process, although this is not directly relevant to their actual jobs. It is considered to be a good way to begin for people who have been unemployed for some time. It has also meant that the new employees have got to know one another better. The participants general assessment of the course is that it should either be improved or could be discarded; it would be useful, for example, to reduce the general and stock related aspects of the course by half. The unemployed individuals have had no role in the planning or development of the course contents.

Assessment of the actual course is mixed, single units of the course are assessed as follows:

General training

This has provided little vocational benefit, the common motivation for the participants being the prospect of a job. This implies that motivation for general vocational training has been mixed. The participant interviewed considered that the physics and chemistry elements were useful and relevant for the future working situation. Satisfaction regarding EDP training was expressed but the psychological part was considered irrelevant. In general it was considered that too much emphasis was placed on the social, pedagogical and psychological aspects of the course which many participants found boring.

Vocational training

The evaluation of the stock room part of the course was negative. The participant interviewed criticized the limited course content; there was not enough to do; the participants were bored and the trainers were criticized unfavourably.

Introduction to the dairy sector

This part of the course was positively evaluated. The participants have benefitted by learning about the whole of the cheese production process: from

milking the cow to the final consumption of the cheese by the consumer. The advantage of the participants having the opportunity to produce cheese themselves at the pilot plants was emphasized. Furthermore, it is considered that a knowledge of hygiene is useful in dairy production. However, the comment was made that, whilst it is good to know something about cheese production, this knowledge is not directly relevant to the job as it is the dairymen who actually produce the cheese. The course participants consider they could carry out the actual work required without attending a training course.

Practical training at the dairy

The participants are dissatisfied with working for 4 weeks for the dairy and only receiving the daily unemployment benefit rate. They consider that 1 week would be sufficient and, moreover, suggest that the practical training should take place earlier in the course so that they will have more experience of the dairy before undertaking the theoretical introduction to the dairy sector.

Cost evaluation

The dairy has not borne any costs for the training programme. The head of the Packaging Department estimates that the training course has reduced the normal costs of starting a new employee by approximately 25%. The participant interviewed is dissatisfied with the fact that the trainees are only paid the daily unemployed benefit rate as opposed to the full daily remuneration rate during the 4 weeks practical training in the dairy as it is considered that the trainees undertake full production jobs.

5. Summary

The expansion of the Nr. Vium Dairy and increased cheese production are a result of MD Foods' decision to concentrate specific production at Nr. Vium. An important task is, therefore, to adapt employees to the increased production, i.e. a considerable number of additional unskilled employees will be required. The dairy's usual recruitment procedure is inadequate to cope with a large number of new recruits, therefore the skills upgrading of unemployed individuals, as described in the case study, is an ideal solution to the dairy's problem. The employment service provides interested unemployed applicants. The dairy selects course participants, public funds meet the cost of a thorough 17 week training course and the trainees gain experience in the dairy before they are actually employed. This is a cost-free, efficient way for the dairy to obtain a large number of well-trained employees.

As far as the unemployed people are concerned, the training programme is seen as a compulsory activity through which they can find a job. Although participation in the course is seen as essential in order to successfully find work they do not consider the training provided by the course as necessary for them to be able to carry out the work in the dairy. This view obviously results in mixed motivation and interest regarding the course.

The existing unskilled dairy employees, who originally took the initiative for the implementation of the programme, perceive the new recruits as a threat since the latter have stated that they are now better trained. The target training for the former group has not yet started.

Linking the training activities together presupposes a sufficient number of employees in order for a course of some duration to be established. Training a reserve workforce means that the company have the opportunity to economize by using numerical flexibility in its production planning. This means that the opportunity for some employees to undertake training courses of long-term duration has been created but, at the same time, job competition has also been created.

The fact that this training course has been implemented is due to the interaction of several factors: government initiatives in the field of training for the labour market (e.g. the Educational Aid to Adults from Public Funds Act) and the establishment of funding to overcome training problems are fundamental to the existence of this training programme. The question is: how would the company have overcome the problem if it had to cover all the expenses on its own?

In addition the employment service and the unions have made considerable contributions in the educational field to the implementation of this programme, especially in their experiments with and publicising of rotation schemes.

All those involved agree that the implementation of the project is due especially to an enterprising and experienced educational consultant in the unskilled women's union.

APPENDIX 1

The Nr. Vium Dairy case study is based on interviews with the following:

MD Foods' head office:

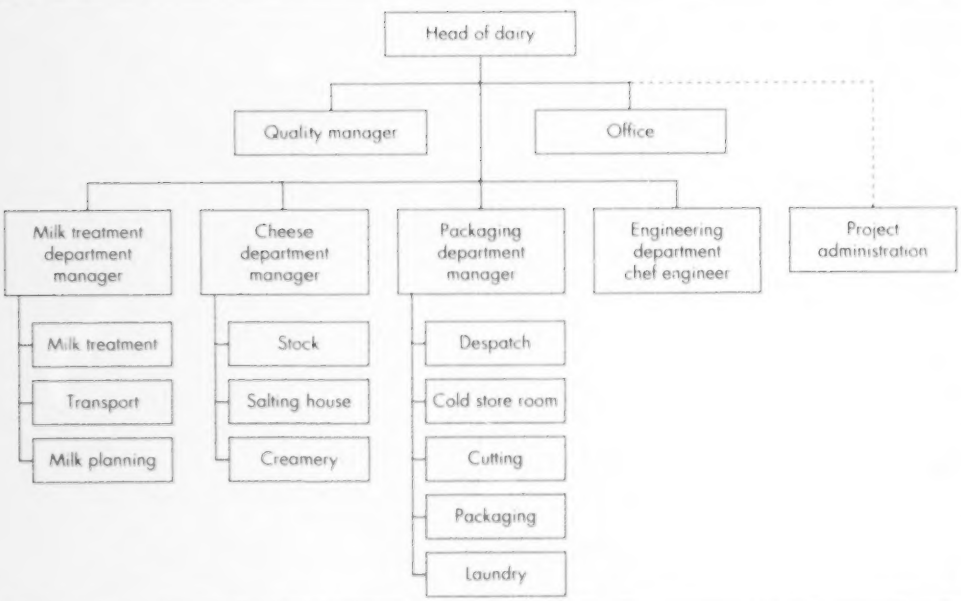
Production manager	–	Klavs Toft
Training manager	–	Teddy Andersen

Nr. Vium Dairy:

Head of dairy	–	Jens Cristian Holm
Head of Packaging Department	–	Palle Jellesmark
Head of Administration	–	Birgit Schmidt Sørensen
Female union representative (unskilled female workers)	–	Lisbeth Knudsen
Participant in course for unemployed people	–	Hannah Kjærulf

APPENDIX 2

Organization chart



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APPENDIX 3

2.

Company data

Company overview

1.	Current total sales	classified information
2.	Current total payroll	classified information
3.	Current value added	classified information

Employment/human resources

4. Current total workforce (1992)

Management	
Head of dairy	1
Managers and departmental heads	9
Administration	6
	16
Hourly paid employees	
Skilled dairymen	22
Dairy apprentices	12
Unskilled employees	157
Unskilled trainees	14
Skilled craftsmen	4
Drivers/mechanics	21
	230
Total	246

5. Permanent employees (1988 and 1992)

	1991	1992
Hourly paid employees	88	238
Management	12	16
Drivers/mechanics	22	22

6. Temporary employees — None

7. Arrivals and departures during last three years:

Management	arrivals:	4
Hourly paid employees	arrivals:	150

8. Remuneration policy: With respect to:

Local labour market	below average
Sector as a whole	average

9. Total annual cost of continuing vocational training — classified information

10. Percentage of total 1992 training expenses — information not available

11. Number of employees participating in the company's 1992 training programme — information not available

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3. CARLSBERG A/S

The case study is based on interviews with key company personnel held on 30th November and 2nd December 1992 and carried out by Jette Bang Jensen MA.

Introduction
Carlsberg A/S (Carlsberg Ltd.), the subject of this case study, can be generally characterized as a company in the process of growth which, through its development strategy, maintains daily production in line with immediate market demands. Furthermore, the company aims to rationalize the work process with a view to increasing productivity and reducing the number of production units.

This objective has intensified demands on the flexible use of production equipment and optimum use of human resources.

As a direct consequence of this development trend the company employs fewer people. In addition, the company's demands with respect to the existing employees' skills have changed considerably.

The aim of this case study is to describe and assess the method adopted by Carlsberg A/S in order to prepare for this development, especially with a view to illustrating company initiatives with respect to upgrading existing employee skill levels.

One company innovation is its decision to offer 50 brewery workers a 12 week course at lower secondary school level in general subjects, e.g. Danish, mathematics, etc.

The actual training programme is aimed at raising the general education level of the brewery workers and creating an educational base to work from. A scheme has recently been introduced in Denmark offering adult employees with a low educational background financial support for general adult education.

The educational programme has been positively evaluated by the social partners.

1. Company overview

1.1 General description of the company

1.1.1 General company data
Carlsberg Breweries is an old company, established in 1847, located in the centre of Copenhagen. Today the company is called Carlsberg A/S and includes the Carlsberg Brewery in Copenhagen and the Tuborg Brewery on the outskirts of Copenhagen. Carlsberg and Tuborg are amongst the most well known brands of beer in Denmark. Carlsberg A/S belongs to the Carlsberg Group which includes 81 subsidiaries companies, most of which are located outside Denmark.

Carlsberg A/S employs a total of 2,900 people and has an annual turnover of DKK 854 million (1991/1992). The factory produces beer and soft drinks. Only beer is produced at the subsidiary which is the subject of the case study. The Carlsberg and Tuborg Breweries each produce 5 million litres of beer per day and production comprises some 40 to 50 different types of beer which are sold on both the domestic and foreign markets. Beer produced for the home market is bottled and packed in one type of packaging, whereas beer for export is bottled in three different types of bottle and six different types of packaging for more than 100 markets. Beer sales are subject to seasonal fluctuation and are considerably higher in the summer than in the winter. The product may be stored for up to one year. Carlsberg A/S in Copenhagen primarily supplies beer to East Denmark; West Denmark is supplied by a Carlsberg subsidiary in Fredericia. The beer is distributed via two channels: in Copenhagen it is delivered direct to retailers, supermarkets and restaurants by Carlsberg drays, distribution to the rest of the country is via 59 Carlsberg depots located throughout the country.

Carlsberg A/S holds a market share of 70% in Denmark. Its market share fell slightly a few years ago, due to the introduction of a number of low priced brands of beer on the home market, but it is now steady. Consumption of beer on the home market is lower than in previous years and this means that the home market and Carlsberg's production for the home market are stagnant.

Carlsberg A/S exports beer to over 100 different countries. When a new market is being built up beer is exported from Copenhagen but once Carlsberg has gained a certain share of the market it enters into a licensing agreement with a foreign brewery. Once the market is sufficiently developed, a private brewery is either built or bought, or a joint venture agreement is made with a local brewery. In addition, the export unit in Copenhagen produces bottled beer for cross-border trade which provides a fairly high level of sales. Both home and export production are stagnant. Carlsberg's products are sold under the brand names of Carlsberg and Tuborg. Quality and brand names are important sales parameters and in this connection it should be noted that Carlsberg A/S expects to achieve ISO 9002 certification in spring 1993.

1.1.2 Company development and strategy

A demand oriented company
In future Carlsberg will be a more demand oriented company. The market will be characterized by product demand differentiation, more types of beer will be produced in different types of bottles and increased demands on packaging are anticipated. This, in turn, will lead to greater demands on flexibility relating to production

equipment and organization, both in terms of human resources and skills. Demands will be made on greater mobility, flexible working hours, new qualifications, the division of labour, etc. The existing traditional company culture will have to change and innovation will influence the future of the company.

Amalgamation of the Carlsberg and Tuborg Breweries

During the period up to 1996, the beer production which now takes place at the Tuborg Brewery will be transferred to the Carlsberg Brewery and the brewery in Fredericia. This means that production capacity at Carlsberg must be substantially increased. The main part of production will be transferred in 1996. On the brewing side the units that prepare the wort and carry out fermentation have to be extended. On the bottling side a new unit is to be established incorporating new technology. This will lead to a reduction in employee numbers, new job functions, reorganization of the workforce and new qualification demands.

Increased productivity

For a number of years the company has been rationalizing production to increase productivity and has reduced the number of employees. In 1985, 785 hectolitres of beer were produced in the Danish brewing sector per employee. Denmark ranked 12 in terms of productivity in the European brewing sector. In 1990, 1,961 hectolitres per employee were produced and Denmark was in 5th position in Europe in terms of productivity. This aim for higher productivity is a constant feature in the development of Carlsberg A/S. With the amalgamation of the breweries, investment in new works and a reduction in employee numbers, increased productivity and quality are two keywords central to future development at Carlsberg.

1.2 Technology, organization and qualification demands

Beer production consists of brewing and bottling

The brewery side comprises the malt house, brew house and beer treatment. The production process is highly technological with computerized production control. Bottling covers the sorting, rinsing and washing of bottles, bottling of the beer, the pasteurization process and the labelling and packaging of the bottles. Technology in the Bottling Department is more mechanical and is the part of beer production which involves the most employees. It is, therefore, on the bottling side where future reductions have to be made in production and labour costs. With the amalgamation of Carlsberg and Tuborg a new Bottling Department, incorporating new technology, will be installed. This will lead to a reduction in the workforce, and alterations in tasks and work organization. A more detailed description of the internal structure of the Carlsberg Brewery is restricted to the Bottling Department.

The Bottling Department

The Bottling Department currently consists of three slightly different bottling units operating on a two or three shift system. The largest unit has a production capacity of 78,000 bottles per hour and another produces 48,000 per hour. One of the units produces to specific order whereas the other two produce for stock. Seasonal fluctuations are partly dealt with via production planning for stock and partly by weekend work and temporary employees during the summer. The department is centrally organized in line with production.

Organization of the Bottling Department

Organizational structure (cf. Appendix 2)

The organization of the department is built around three bottling units. There is a relatively hierarchical structure with the production manager, works inspector, bottling manager and bottling supervisors and foremen over the brewery hands. The communication network is long; there are many links in the organization chain.

The new bottling system, which will be introduced in 1996, will be characterized by advanced technology both in production and information terms.

The implementation of new technology will have a considerable effect on the workforce. In the 1970s 3,000 people were employed in the Bottling Department. By 1985 the workforce had been reduced to 500–600, appointed on a group contract basis, with approximately three times as many managers as there are today. 250 people are currently employed, on a group contract basis, in the Bottling Department, with some 15 foremen, 10 bottling supervisors and 2 storekeepers. A bottling unit is now run by 14 to 20 employees and 2 mechanics per shift. The new unit, which will be introduced in 1996, will be operated by a total of 6 employees. This underlines the fact that continuous development will be accompanied by considerable staff reductions.

Changed qualification demands

The work in the bottling units currently consists of operating the machines and overseeing the work plus a number of manual tasks. When the line does not function correctly a technician is called in. Tasks in the new bottling unit will be extended to include the planning and control of the unit plus easier maintenance. For example, the employees will be able to undertake line control, correct electronic control faults and locate faults via a visual screen. The operations manager considers it is important that some employees should be able to undertake these tasks during a shift, others

should understand the principles of operating computer controlled machines and be capable of moving from one screen to another. This is a considerable extension of the job, demanding extra vocational qualifications, attitudes and the ability to act as a trouble-shooter. The fact that the jobs are changing also means that existing demarcation lines between the technicians and operators will have to be broken down in order to avoid barriers to development. These changes will also lead to changes in demarcation and the role of the foreman will be partially redundant.

Organization, communication and cooperation

Reorganization of the workforce in the new bottling unit will, in addition to a demand for increased and new skills, also introduce new tasks and more responsibility for the employees. Employees in some units are already dividing into groups of 5 to 6 employees who allocate the work amongst themselves. A larger distribution of work tasks and responsibility will affect demarcation and lead to a more decentralized, less hierarchical, organization with shorter communication paths. At present all communications are via the shop steward but a process is underway involving more visible management and more direct communication between the management and the employee. According to the works inspector, the future foreman should be able to understand technological processes, read and understand manuals, including those for ISO 9000, communicate with foreign machinery suppliers regarding faults, cooperate with other foremen and have a knowledge of the process of beer manufacturing. The foreman should be a sparring partner and an equal in terms of communication. This is where some of the present foremen fail and, therefore, retraining and/or continuing training are being considered.

1.3 Human resources

Workforce structure

The Carlsberg and Tuborg Breweries employ a total of 2,900 people, comprising approximately 1,300 workers, 150 foremen, 250 technicians and 1,200 salaried production and administration employees. Despite the fact that beer sales are subject to seasonal fluctuation the company does not engage a significant number of seasonal employees.

Employee numbers

As previously mentioned, Carlsberg has been undergoing a process of development for a number of years which has required a considerable reduction in employee numbers and will continue to do so with the future amalgamation of the Carlsberg and Tuborg Breweries in 1996. The following table shows how this development has evolved since 1987 and the anticipated situation in 1996 when the amalgamation becomes reality.

This means that the number of brewery workers will have to be reduced by approximately 500 by 1997. Future workers in this group will be recruited from both breweries; although production will take place at the Carlsberg Brewery individuals from each brewery will be offered an equal opportunity. The technicians group has already been reduced by 91 from 350 to 259, but it is a group with growing importance because of technological development in the work. The number of salaried employees also has to be reduced; in the Production Department 200 jobs will be lost partly due to the amalgamation but also due to the decentralized organization.

Breakdown of the current workforce

74% of the present brewery workers are male and 26% female, this 3:1 ratio corresponds to that in 1987/88. In the past, certain jobs were, typically, carried out by men and others by women but new developments have caused these barriers to disappear. The technicians are male, whereas the salaried employees group comprises 60% men and 40% women. The average employee has, generally, been employed by Carlsberg for several years and the average age, 45 to 50 years, is relatively high. This is due to the fact that over a number of years Carlsberg has been reducing its workforce and there has been no recruitment. In the past no specific qualification demands were made for the workers and a recent study showed that only a small number had a skilled, but widely varied, background, the remainder were unskilled. This study also showed that approximately 50% of the brewery workers had completed 7 years of formal education. The background of the foremen is similar since they are all recruited from this group. 70 of the 239 technicians are trained electricians and 169 mechanics.

Group	Year			Planned reduction
	1987/88	1991/92	1995/96	
Brewery workers	2,230	1,198	800	500
Technicians	350	259	–	–
Salaried employees		975	778	300
Production Department		385	180	200

Employee turnover

Employee turnover in the company is very small, only a few percent. A certain number of natural retirements have taken place amongst the brewery workers but these have not generally been replaced and there have been no new employees for a number of years. This also applies to the foremen and maintenance employees. A limited number of maintenance employees have been recruited from the machinery suppliers due to their specialist knowledge of the new equipment. The company only recruits salaried employees with specialist knowledge, e.g. the recruitment of a product manager for the Marketing Department. New employees are only recruited when a vacancy cannot be filled internally.

Recruitment and internal promotion

When the present brewery workers were recruited there were no demands on educational background; employees were mainly recruited for physical jobs and promotion was by seniority. Today there is an increasing need for replacement and appointments are made on the basis of qualifications. Vacancies are advertised internally after a job profile has been drawn up. An applicant's qualifications are assessed by the departmental head in conjunction with the shop steward and the following factors are taken into account:

- sense of responsibility
- ability to cooperate
- quality awareness
- ability and desire to acquire the necessary vocational qualifications
- education
- technical knowledge and skill
- initiative
- creativity
- interest in results
- experience as a brewery worker

This list is drawn from a written agreement between the management and trade union representatives. The production manager attaches great importance to low rate of sickness absence, temperance and, in part, age. The present foremen were all recruited from the brewery worker group. They are employees who have shown interest in and ability for leadership.

Working conditions and trade union membership

The basic remuneration for a brewery worker is DKK 65 per hour. Furthermore, a piece-work bonus is paid depending on unit productivity, this varies from DKK 32 to 50 per hour. In addition there are various inconvenience allowances and shift bonuses are also paid. The remuneration level is high in comparison with other unskilled employees on the Danish labour market. The brewery workers are members of the catering and brewery workers trade union and the technicians belong to the CO metal trade union. The catering sector and brewery workers unions were recently amalgamated as a consequence of the fall in brewery worker numbers.

2. Continuing vocational training

2.1 Company training policy

Carlsberg A/S does not have a formal training policy for its brewery workers but the following will provide a description of the main elements of the way training is handled by the company.

Collective bargaining agreement regarding training

A framework agreement, including a section on training, has been drawn up between the management and employees in connection with the amalgamation of the breweries and the corresponding reduction in employee numbers. The agreement covers the new role of the brewery workers plus the training which will be offered in this connection. The new technology and reorganization of work will make the traditional demarcations unnecessary. The agreement recognizes that the work of the brewery workers is to be extended to include simple maintenance tasks but it has not yet been decided how this will be undertaken. It has been agreed that the brewery workers will be provided with training in general subjects in addition to training aimed at individual jobs. Agreement has also been reached with regard to employees who leave the company: they will be offered training in a relevant programme drawn up in cooperation with the public education system. During the training period (maximum 3 months) the employee will receive full remuneration from Carlsberg.

There is currently no link between participation in training courses and remuneration, due to the fact that the union representatives do not want this connection to be made. The management, however, would like to reward participants and it anticipates that this will be reflected in remuneration in the future.

2.2 Target groups

The brewery workers each undergo an average of 3 to 4 days training per annum. Maintenance Department employees undertake an average of 7 to 8 days training per annum and this reflects technological developments. Foremen receive little training since it is anticipated that this role will disappear.

2.3 Training development and planning

The Production Department manager has overall responsibility for employee training, although in practice a large part of this responsibility is given to the bottling supervisors who know and are in regular contact with the individual employee. Once a year the shop steward and a representa-

tive from the Training Department meet to discuss training for the following year, i.e. it is decided which employees will participate in which courses. The shop steward then informs the employee, having previously discussed which courses the employee would like to attend. The company follows the principle that training is voluntary. There is a folder in each department containing details of the content and duration of courses available. This provides a practical starting point for course selection. Course participants are selected by the management and it is the Training Department's task to provide the Production Departments with the necessary course information and implementation.

The training committee
The company has a training committee for the brewery workers, made up of the production managers, shop stewards, the training manager, wages manager and a special training expert. The committee maintains an overview of the training needs of the various departments in order to plan and provide the optimum level of training.

The Training Department
The Training Department provides a service for all the other departments, directing attention to course opportunities and funding possibilities, e.g. public subsidies, and organizing course participation. In addition, it maintains links with institutions and trainers and labour market educational requirements.

2.4 Type of training courses
Within the framework of this case study it has not been possible to record the overall training activity of a group of employees in the course of one year, but the following types of course are available for the brewery workers:

Courses for semi-skilled employees
These courses are offered by the AMU system. The courses include a number of modules lasting one to three weeks and qualify the individual for the job of line operator in the manufacturing sector. In addition, more specific technical courses, tailored to the company, are offered in brewing and bottling. More general courses in quality awareness and company knowledge are also held. The courses offered by AMU are mainly financed from public funds but it is the partners in the labour market who have the skills and know-how regarding the planning and content of the courses. Carlsberg A/S has it own school which comes under the AMU system where technical courses in brewing and bottling are held. These are of one to three weeks duration and are approved by the AMU Trade Committee. Carlsberg A/S also cooperates with the Process and Metal Industry Trade Committees in order to hold more specific technical courses and these are run in Carlsberg's own school or in an AMU centre.

Supplier courses
When new machines are purchased the suppliers prepare and carry out employee training as a recognized part of the delivery service. The company views this an expensive but essential training activity.

On-the-job training
Employees undertake a training programme before they are made responsible for the operating of a machine. Four working trainers are permanently attached to the Training Department and their sole function is the preparation and carrying out of on-the-job training. The individual departments maintain a record of which employees are qualified to operate a particular machine; the training is valid for one year.

General training
A recent training innovation is the company's offer of continuing training in general school subjects to 50 employees. This programme will be described in detail in the case study.

Future training plans
It is planned to provide compulsory language lessons in German and English, in addition to general subjects. During the last six to seven years voluntary classes have been held in these languages for the brewery workers.

Furthermore, it is hoped that managers, brewery workers and mechanics will participate in the same courses in the future with a view to this being instrumental in breaking down existing demarcations.

3. Description of a specific training programme

3.1 Carlsberg's tasks until 1996 and the purpose of general education for the brewery workers
Carlsberg is facing a considerable reduction in its workforce whilst at the same time developments within the company are making increased demands on qualifications and organization as technology is introduced into the departments. The present workforce is characterized by older employees who have been with the company for many years and have had a limited education. During the next few years the company will have to select and qualify employees for the new production equipment and, furthermore, establish a form of work organization and cooperation equivalent to the qualification level which these employees may have or may achieve.

The company is, therefore, in the process of selecting employees who will be needed at Carlsberg in the future and upgrading their skill levels. Within the framework of the training committee the shop stewards interviewed all brewery workers regarding their future wishes.

The result of their investigation, which was anonymous, showed that 415 people wanted early retirement, 545 wanted to continue working and 528 were willing to undertake training (39 of these wanted training for another job). This study also highlighted the educational background of the employees: 50% had completed seven years' schooling. Carlsberg, therefore, expects a considerable natural wastage within the next five years, avoiding the need for redundancies.

During the company's strategic discussions on staffing the new production works in 1996 several possibilities were discussed: one was to use employees with a craftsman background. This would, however, lead to the dismissal of the brewery workers. Another possibility consisted of training the present brewery workers; approximately five years ago a group of brewery workers was trained to operate advanced technical processing equipment via a long-term training course with positive and satisfying results for all concerned. However, not all the brewery workers are considered suitable for such a programme. In order to upgrade the brewery workers' skills it is considered they need a better educational base on which to build their retraining. This is an important reason for offering general adult education.

For a long time the shop stewards have sought to implement continuing training for brewery workers in order to qualify them for the future. The introduction of grants by the Danish Government for general adult education for individuals with a poor educational background has provided the necessary stimulus.

3.2 Access to general continuing training

All brewery workers received information about the general adult education programme. If an employee was interested he advised the shop steward, whereas other employees have had to be encouraged to enrol. The departmental manager and shop steward decided who should attend the first two courses. It appears that the employees realize that continued employment at Carlsberg requires training and that the management is considering the future when selecting course participants. However, there is no recognized link between course participation and future employment.

3.3 The training programme

Programme objective

The training programme aims to raise the general education level of the course participants from a 7th class to 9th class level.

Training organization

The courses are developed within the public sector framework. Teachers are publicly employed and the courses are held at a school run by the public authorities. The adult education course runs for a total of 12 weeks and is organized in four sessions of three consecutive weeks over a period of 6 months. Two classes of 25 participants are currently underway and the participants all come from the various Production Departments in Carlsberg and Tuborg.

Course content

The course comprises tuition in Danish, mathematics, science (chemistry, physics and biology) and information retrieval (EDP). The content and standard is equal to that taught in the 8th and 9th years of a lower secondary school and is set by the Danish Centre for Adult Education.

Training form

Training is based on a traditional timetable divided into skilled training lessons based on traditional group teaching with additional homework. A three hour workshop is held once a week based on self-tuition. A voluntary test rounds off the course and the company, feeling that this would lead to more commitment to the course, would like this to be a definite part of the course. In general the employees, having participated in the course, do not take the test. The shop stewards want the test to remain voluntary.

Training costs

The school and teachers' expenses, as well as a major part of the employees' remuneration during the course, are financed from the public sector. Carlsberg bears the cost of the difference between the subsidy and the employee's actual pay. Its expenses for the two classes (each of 25 participants) were DKK 1 million, i.e. DKK 2,000 per participant. The employee receives full pay during the course but has to spend time completing homework in connection with the training.

4. Assessment of the training programme by the various parties involved

The management's assessment

It is important for the manager that through the course the employees are taught how to "learn to learn", i.e. are trained to acquire new knowledge. The aim is to give the employees the feeling that new tasks can be handled easily, giving them, for instance, the confidence to start reading machine manuals. The general belief is that the course enhances all round education, for instance reading a newspaper, also respect for the theoretical knowledge of the technicians has increased. The managers feel that the course removes the pressure of everyday life from the employees. When they return from a course their view of day to day problems has changed. The fact that the course is difficult to keep up with enhances company spirit/cooperation. The homework in-

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volved lends a more serious image to the course than others which involve less commitment. The course is considered to promote better communication between the different levels within the company and a good foundation.

The union assessment
The shop steward is pleased with Carlsberg's general aim to upgrade the brewery workers. At the same time, it was stressed that the training activity should be useful both in connection with further company training and within society as a whole. There is no recognized link between participation in the course and continued employment, but taking the future into consideration, it is an offer that is difficult to refuse. The shop steward's openness towards the courses is based on feedback from colleagues. He believes that the courses have placed the employees in a learning process, therefore, providing them with a positive attitude towards basic training. From the start the employees have had a positive attitude towards the programme. He feels that participants are satisfied with the courses and are generally more self-assured. The fact that training is organized in preparation for a test has been discussed but it is voluntary and this is considered satisfactory.

The employee's assessment
In general the employee interviewed considered that the course broadens one's outlook and improves communication skills. She also felt that she would be able to make use of the data training in her everyday work in the Bottling Department. Danish and information retrieval (EDP) were of particular use to the employee. She found science and mathematics interesting but not so relevant to his everyday life. She would have preferred to follow scheduled science classes instead of chemistry but the training offer included all subjects or none at all. She felt that foreign language lessons would be useful; she often felt at a disadvantage when dealing with the foreign machinery suppliers, although the 12 week course did not provide sufficient time to learn general skills let alone another language. However, she considered the course was a valuable starting point.

The course requires the participant to spend some two to three hours a day doing homework. The interviewee considered the fact that the course was arranged in full-time units of three weeks duration was good since it did not detract from family life for too long a period. The length of the training course means that the participants have to follow the training closely and this was considered to be a positive aspect coupled with the class atmosphere which encourages the participants to make an effort. In general the participants are highly motivated.

The teachers are popular although the employee interviewed questioned whether they had experience of teaching adults. The teachers will, therefore, possibly need to improve their training methods.

The interviewee does not wish to take the final test at the end of the course although he thinks that most of the participants will do so, since the company expects this.

Regarding other courses, the comment was made that although you follow a course and gain new knowledge it is of little use when you return to work, since you return to the same job.

5. Summary
The employment situation at Carlsberg Breweries can be summarized as follows:

Within a limited number of years the workforce will be considerably reduced and major efforts are being made to train the brewery workers and maintain their employment. This is partly due to the introduction of new machinery and partly to the composition of the present workforce. General adult education is essential for both those who will continue to work at Carlsberg and those who are likely to undertake continuing vocational training. It is also essential for those employees who will have to seek alternative employment on the general labour market. As a consequence, this training activity is being supported by both the management and the employees.

The Educational Aid to Adults from Public Funds Act is an important factor in Carlsberg being able to offer general adult education courses to its employees. It is an unspoken, although recognized, fact that the training programme, apart from upgrading the level of the employees in question, is also of importance in the selection process for future employment with Carlsberg. The company is large enough to cope with the absence of the course participants during the 12 week programme.

A general characteristic of this case study is the consensus amongst the interested parties regarding the expediency of the general nature of the training programme. Management emphasizes this as a prerequisite for the implementation of the continuing vocational training necessary to develop the total human resources of the company. A decisive reason for the employees' positive attitude is the fact that the course not only qualifies the individual for a job in the company but also improves their general employment possibilities.

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APPENDIX 1

2.

The Carlsberg A/S case study is based on interviews with the following:

Training manager – Torben Dahl

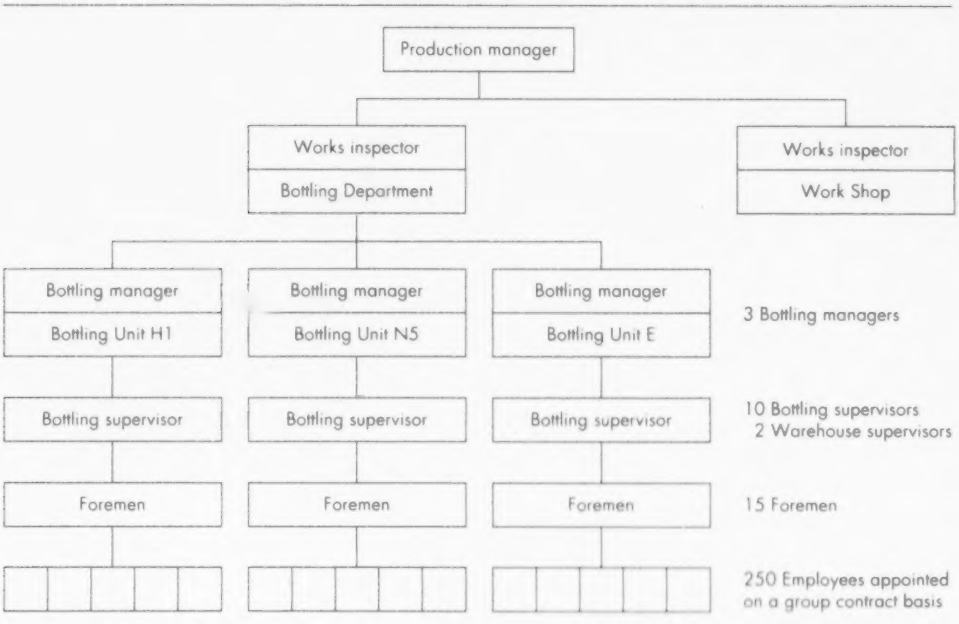
Bottling Department

works inspector – Kasper Madsen

Shop steward – Kaj Sillemann

Brewery worker – Barbara Jacobsen

APPENDIX 2



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APPENDIX 3

Standard data sheet

Company overview

1. Current total sales — DKK 854 million (1991–1992)
2. Current total payroll — classified information
3. Current value added — classified information

Employment/human resources

4. Current total workforce (1991–1992)

Brewery workers	1,198 (886 male/312 female)
Technicians	259 (259 male)
Salaried employees	975 (approx. 816 male/544 female)
Production	385
Total	2,817 (1,961 male/856 female)

5. Permanent employees (1988 and 1992)

	1991	1992
Brewery workers	2,230	1,198
Technicians	350	259
Salaried employees	975	778
Production	1,385	180

6. Temporary employees — Not significant

7. Arrivals and departures during last three years:

Brewery workers	departures: 1,032 arrivals: 0
Technicians	departures: 91 arrivals: 0

8. Remuneration policy:
With respect to:

Local labour market	wages higher
Sector as a whole	wages higher

9. Total annual cost of continuing vocational training — classified information

10. Percentage of total 1992 training expenses subsidized by public institutions — classified information

11. Number of employees participating in the company's 1992 training programme — 400 brewery workers

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4. STEFF-HOULBERG

Introduction
This case study is limited to the Steff-Houlberg slaughterhouse at Holbæk. In 1992 this was the first meat processing factory in Denmark to obtain ISO 9002 certification as part of Steff-Houlberg's quality development strategy. The unit at Holbæk operates as an independent profit centre within the guidelines laid down by the management of the Steff-Houlberg parent company. The Holbæk slaughterhouse is, thus, an autonomous unit.

It has not been possible within the framework of this report to study the relationship between the ISO project and primary production, a relationship which has been established and is certain to have an effect.

The study was carried out on the basis of a series of interviews held in the company. An important principle was to ensure that all employees concerned were involved. Assistance was given by Professors Birger Jacobsen and Ebbe Lauritzen of the Danish Meat Trade College.

The aim of the case study has been:

- to identify continuing training activities established in connection with the ISO project;
- to examine the extent to which it has been possible to involve several groups of employees in the same training programme;
- to examine the extent to which it can be said the ISO project has influenced the general attitude to continuing training activities among the different categories of employees;
- to examine the various participants' assessments of the immediate results at the end of the ISO project.

1. Company overview
The Steff-Houlberg Slaughterhouse at Holbæk deals in the cutting and packaging of meat products and supplies supermarkets, catering companies and export markets. The Holbæk company, which specializes in boning and packaging fresh meat, is the connecting link between the slaughterhouses (including the parent company) and other companies that use cut meat and meat packed for the retail trade. The product range includes primal cuts, minced meat and meat cut to customer specifications into single portions. Whole and part-carcases are cut into primal cuts and into retail portions, according to customer requirements, for supermarkets and other outlets. The Steff-Houlberg Slaughterhouse at Holbæk is a subsidiary of Steff-Houlberg Slaughterhouses, a cooperative company employing some 900 people, the parent company is situated at Ringsted and slaughters pigs from Zealand and Bornholm and most fatstock. A number of European and Danish companies are linked to the group.

During the period between 1988 and 1992 the employment rate at group level has fallen slightly, from 2,400 in 1988 to 2,350 in 1992.

The individual companies within the group framework have relatively wide ranging and autonomous powers for training policy and organization. However, the Steff-Houlberg ISO project differs in that it forms part of the group's development policy strategy and a joint action programme and schedule has been decided on by the group for all the individual companies.

Steff-Houlberg Slaughterhouses, Holbæk, is a medium-size company, established in 1986, producing non-perishable goods. The company forms part of the manufacturing process and provides a link between the slaughterhouses and shops, retailers, etc. with "ready-to-use" products.

The company is made up of two departments: a Sales Department and a Production Department. The departments are closely linked as the company produces to order and coordination between the departments is essential. The company was the first in Northern Europe to gain ISO 9002 certification (on 29 April 1992) and has, thus, undertaken an employee training programme.

The company is located in factory buildings which were taken over in 1986 and formerly housed a condensed milk factory. It employs 114 butchers, engaged on a group contract basis, and 20 salaried employees. It is situated in an area with no other meat factories. There was a previous cooperative meat factory in Holbæk which means it is possible to recruit skilled people from the area.

Production and markets
The company supplies products to the penultimate link in the "ready-to-use" chain. The market is based on the customers as links in the "value chain", i.e. catering companies, supermarkets and supermarkets with their own butchery departments.

The products processed include cor-vac packed meat, which the butchers/supermarkets can use to rationalize shop operations and create the image of a traditional butcher's shop. In addition the butchers are able to maintain a stock of non-perishable goods that prevent unnecessary wastage. The cor-vac packs are also sold in bulk packs for freezing by the consumers themselves.

The company also produces packed and price-marked goods for direct display in accordance with individual retailers' requirements.

The company deals with both small and major customers, the latter being large chain stores. The price is fixed according to output demand: the discount shops, for example, have price labels on

their display cases and, therefore, the goods are not price-marked. The large chain stores distribute goods to their shops in their own vehicles or through fresh foodstuff depots. The area of rapid growth is the discount markets whereas purchases by traditional shops is lower. The company exports to Sweden and Germany. It has not, however, been possible to establish the extent of this market, as Sweden is an unstable market.

Product strategy
The company operates in accordance with the concept of long-life products. This is achieved by ensuring a high quality in materials received and an efficient production flow at low temperature; the products are packaged the same day. This production process ensures a low level of germs.

In addition to non-perishable meat production a number of other products are manufactured, e.g. fresh and hung beef. A high standard of hygiene is maintained by the company's control procedures: upon receipt of the product, control by the butchers, good processing conditions and low production temperatures.

In order to ensure high quality, in future, all sub-suppliers will be inspected once a year. Goods delivered from the parent company are also subject to current controls and any problems arising are handled directly by the butcher concerned. The factory manager is only involved in cases where the problem cannot be solved.

Current assessment of goods received is carried out systematically by means of enquiry forms and documented with polaroid photos.

Organization and technology
The raw materials are received as whole and part carcases from other Danish companies. These raw materials are processed into finished retail packs for supermarkets. All pork supplies come from the parent company at Ringsted, while beef is supplied by several Danish slaughterhouses.

Retail trade and supermarkets
There are separate production flows for fresh and hung meat in order to avoid cross contamination.

The equipment used is familiar and in common use throughout companies in the meat sector.

Internal organization
The production process is organized on three levels: production employees, foremen (butchers) involved with industrial and retail cutting and packaging and the Despatch Department. A Production Manager oversees the foremen.

Work is carried out on an individual piece-work basis but a reorganization process is currently being carried out with a view to introducing a group piece-work contract and a division of labour in the production groups. Each group will, thus, have greater responsibility for cutting to order and the group itself will organize the work within the group.

Work is carried out according to expected order volumes; the goods are thus produced in advance. Since the products are processed with a non-perishable, long-life concept this permits a certain amount of flexibility in terms of production arrangements.

Orders from large supermarket chains are typically received at 18.30 and then packed for the individual stores by the Despatch Department.

The goods are transported to Kløver's fresh foodstuff depot which distributes the goods to the individual stores so that, at the latest, they are received before noon.

Meat is cut, processed and packed during normal working hours, i.e. between 06.00 and 17.00.

The Despatch Department packs for the individual shops from 19.00 to 03.00. In periods when there are few orders the products are stored in cold stores.

Human resources
80% of the employees in the boning rooms are skilled, i.e. either pork butchers, sausage makers or retail butchers. There are no skilled employees in the Packaging Department. The company places great store on the flexibility of its employees to be able to cut different products and switch between production in the industrial and retail cutting units. When there are insufficient orders to occupy the employees full-time, cutting is carried out for cold storage.

Coordination between the industrial packaging and cutting rooms is undertaken by the same foremen, avoiding the need for several people to be involved.

Recruitment is carried out by advertising in papers. Employees are laid off when there is a fall in orders. The company has experienced no recruitment difficulties; in this connection the relatively high remuneration level and the generally high level of unemployment in Denmark should be considered.

Recruitment selection avoids the re-employment of undesirable individuals. The employees are trained in the slaughterhouse sector and are the responsibility of the butcher/foreman, whilst production responsibility rests with the factory manager.

The relationship between the social partners is characterized as relatively good. Both remuneration and working conditions have been set by

collective bargaining agreements in accordance with which coordinating bodies were set up.

2. Continuing vocational training

Following a resolution of the Federation of Danish Pig Producers and Slaughterhouses, it was decided to implement a quality development project for the whole of the Danish pork slaughterhouse sector which would be implemented by the Danish Meat Research Institute in cooperation with PA Consulting Group.

With a view to ensuring an effective transfer of the results to all pork slaughterhouses, it was decided to start this quality development by, initially, carrying it out as a demonstration project in Steff-Houlberg Slaughterhouses. It is the intention to provide all Danish pork slaughterhouses with access to the results of this project at a later date. This model has been successfully used in a number of other projects within the sector.

The background for this sector resolution is not unambitious, but the decision must be seen in the light of the raw material strategy referred to in the main report; a strategy which, in accordance with current market trends, focuses on raw material quality. Furthermore, the chosen sub-supplier strategy for export markets will also require production quality to be raised with a view to meeting the international trend for an internationally recognized foodstuff production quality standard.

This meat sector demonstration project was carried out in several stages in the various departments of Steff-Houlberg Slaughterhouses. The case study is, however, limited to Steff-Houlberg, Holbæk, since the responsibility for its successful accomplishment has been placed with the strategic management of the company. It falls outside the frame of this study to describe the role played by the Danish Meat Trade Research Institute and other private consultants in the accomplishment of the project.

The management at Steff-Houlberg, Holbæk implemented a number of training courses (cf. below) with a view to motivating the employees to take an active part in the ISO project. The conceptual starting point was that ISO certification would require homogeneity with regard to the product, and an increased sense of responsibility on the part of each employee. The establishment of the ISO project thus became the basis for a number of continuing training activities for all company employees. In this connection particular mention should be made of a one-week, compulsory, quality awareness course which all employees attended.

The prime aim of the course was to establish a common attitude towards the concept of quality across occupational barriers and organizational structures. An interesting result of this process was that different groups of employees gained knowledge of other aspects of production from that of their daily work. Several employees stated that after the course they felt that they had been integrated into the strategic development of the company and, thus, felt responsible to a greater degree for the common goal, namely the future of the company. In order to maintain this link, systematic continuing training activities will be implemented.

Systematic continuing vocational training has, thus, become an integral part of the company's development strategy.

Training organization and funding

In order to carry out the firm certifying project a control group, comprising five salaried employees and two production employees, was set up in the Holbæk company. This control group implemented a process in which employee training played a central role. Merit rating was undertaken through internal meetings and training activities for both employees and foremen. As previously mentioned, the central activity was a common one-week duration quality awareness course set up in cooperation with a local AMU centre. The course was held in-house but financed by the government in terms of fees and remuneration for loss of earnings. However, the company paid DKK 800 per week as compensation for the participant's loss of earnings.

Subject operation	Aim	Duration	No. of trainees	Evaluation Method
Quality awareness	Quality promotion	1 week	114	None
Internal training	Flexibility	2-3 hours	As required	None
Dept. meetings/ seminar	Information/ procedure	2 hours	As required	None
Information meetings	Knowledge/interest	1 hour	As required	None
Key personnel seminar	Upgrading	4 hours x 4 days	15	None
Training plan	Wishes/needs	2 times/year	Selected	None
Internal audit	Quality control	3 days	5	

With regard to continuing vocational training programmes relating to the ISO certification, the control group has developed a training plan for the certification process. This plan includes two-hour information meetings and four-hour courses for key people. These activities combine both internal and external courses. Courses for foremen are organized by the Danish Meat Trade College. It should be noted that activities in the department meetings category are developed and later provided by the management. Training in these activities is thus considered as self-teaching. Selected employees participate in an "inter audit and quality control for the food sector" course, the planning of which is coordinated with the Production Department to ensure that the courses are held during low production periods.

3. Description of a specific training programme – quality awareness

Aim
The aim of the course is to strengthen the participants' wish to respond to the company's quality requirements and improve their cooperation and problem solving skills.

Content
Quality awareness – awareness of own demands, problem solving techniques, knowledge of quality control methods, economic computing of quality control model and evaluation of own work.

Objective
On the basis of the individual preconditions, to become able to respond to quality demands.

Duration 1 week (37 hours)

Organization
The teacher is mainly expected to act as a guide and consultant so that the course is basically built on the participants' own ideas. A large part of the course is carried out in groups and in open discussion.

4–5. Summary including assessment by the social partners

ISO certification creates a change in attitude, with a view to conveying to the employees a general idea of company strategy and their roles in this development.

The ISO certification project in Steff-Houlberg, Holbæk, has led to the company implementing a number of systematically arranged continuing vocational training courses, and has meant a decisive breakthrough with regard to attitudes and understanding of the importance of continuing vocational training and its strategic development potential.

As a direct consequence of ISO standard requirements for continuing vocational training, a record of training wishes and needs has been kept and these form the basis of the development of a training plan for each individual employee.

It appears that the ISO project at Holbæk has resulted in a change in attitude on the management's part with regard to continuing vocational training. This is significant, particularly as the effects of a course, such as that on quality awareness, are difficult to assess. The consensus, amongst employees and management, that continuing vocational training pays, seems to have gained a firm foothold. In future, new recruits will have a contractual obligation to participate once a year in continuing training courses for a period of at least a week at agreed rates.

The quality awareness course – a precondition for ISO certification

As mentioned above, the course in quality awareness played a central role in the whole ISO project. The fault limitation aspect of the course was especially conclusive. The course aimed at crossing occupational barriers in the manufacturing process and its particular aim was to create a common attitude to benefit the daily running of the company.

A number of personal contacts have been made amongst the employees who would otherwise not have known each other or each other's working tasks. The course was run by an external trainer, which was considered particularly important by the participants, as they found that communication was better and not marked by the familiar, well-defined occupational and organizational barriers.

The opportunity was created, therefore, for everyone to view and experience their common working environment without prejudice, and enabled new and different methods for solving a number of working problems to be evolved. During the group sessions of the course a high degree of interaction was achieved amongst the various categories of employees. Groups who in their everyday working life are often set in their attitudes against one another. The general opinion is that the level of cooperation has increased considerably through the development of these activities.

Assessment of the training course

It is very difficult to assess the effect of a course that chiefly concerns attitude. However, the senior management has commented that remarkably few complaints are now made to the department involved in the training programme and that the department has succeeded in establishing contact with a new, interesting customer – a major supermarket chain which has recently achieved great success in selling meat on a discount basis.

The master butcher and internal supervisor have likewise stressed the great difference in the work

before and after the course. They have, however, difficulties in providing concrete examples, but simply state that "everything is just going better".

It is worth noting that both the management and employees have shown great interest in and motivation towards the ISO project. The reason for this is to be found in the fact that they both, obviously, have an objective interest in its implementation. The official justification appears to be the good quality of the project. The Factory Manager sets great store by the employees' greater understanding of management problems and provided the following example:

Before the course the company ran the risk of temporary work stoppages in connection with dismissals, following a continuing fall in demand and a sudden subsequent shortage of labour when a single large order was received. The employees now accept this type of situation and are prepared to work overtime.

Future training and strategy

The most essential result of the ISO project has been the fact that the company now has a complete overview of its strategic goals and the development of its employees' skills. The management systematically identifies "grey areas" in the production process where, after a number of objectives are set, various forms of continuing training are used to achieve them.

It is particularly interesting that, through the ISO project, the company has become aware of its own in-house resources with regard to continuing training. Thus, managers are used as trainers and, as a result, the company has arranged a number of "training the trainer" courses. Thus an important coherence between productive goals and the training effort has been achieved.

APPENDIX

2.

Company data

Company overview

1. Current total sales: classified information
2. Current total payroll: circa DKK 498,000 per week
3. Current value added: classified information

Employment / human resources

4. Current total workforce

	Male	Female
Skilled	62	4
Unskilled	15	33
Total	77	37

5. Permanent employees (1988 and 1992)
   Classified information

6. Temporary employees, (1988 and 1992)

   Seasonal employees: average length of season 3 months
   holiday relief approx. 15

   Other fixed term contracts: none

7. Arrivals and departures during last three years: classified information

8. Remuneration policy: In line with overall sector: piece-work

9. Total annual cost of continuing vocational training: classified information

10. Percentage of total 1992 training expenses subsidized by various public institutions: classified information

11. Number of employees participating in the company's 1992 training programme: classified information

PART 3:

TRENDS

Conclusion

CONCLUSION

3.

It should be noted that the area of this study has been limited to two sub-sectors: the slaughterhouse and dairy sectors. As mentioned in the introduction, the reason for this choice is due to the fact that these two sectors are particularly important and of great interest in terms of the Danish food sector's potential and in terms of economics they are of immense importance for both employment and exports.

The beverages sector is included to comply with the requirement to carry out a comparative analysis on a European level.

Therefore, this analysis does not provide a thorough overall view of the Danish food sector, primarily due to lack of available resources. The overall Danish food sector is only dealt with on a superficial level and on a statistical basis. Attention was drawn to this fact by the social partners at the first evaluation meeting on 10 March 1993.

However, there is an overall consensus with regard to the social partners' attitude to observations, descriptions and part conclusions in this report. The choice of the four case studies as being representative of interesting continuing vocational training cases, was, thus, made on the basis of a procedure at the initial meeting with the social partners.

The following is only a superficial observation and a number of concluding recommendations based on the study.

Regarding the methodological procedure, please refer to the introduction and the methodological papers and presentation of the central FORCE team. In addition, we refer to "G issues" in which the different aspects of the case studies are discussed in detail.

A long-standing tradition exists in Denmark that initial and continuing vocational training are public matters, this is based on a political census of the social partners.

The present study substantiates the views on continuing vocational training of all the parties involved in the individual case studies, particularly the companies use of the AMU system. In this connection, however, it is important to note that the existence of the AMU system and the technical colleges has meant that responsibility for training planning does not lie with the companies but, on the contrary, with the public system.

There is a risk, therefore, that small-size companies are unable to include training efforts within their individual company development strategy. This study recommends that continuing training schemes should be particularly addressed to people with responsibility for training, especially within small- and medium-size companies. Training initiatives for this target group should, first and foremost, relate to "tools".

As the Danish food sector has chosen to commit itself to a predominantly primary produce and sub-supplier strategy, the subject of quality control will be a special area of commitment in the years ahead. It is interesting to note that a Danish slaughterhouse was the first in the world to obtain ISO certification and even more so that this ISO project involved the primary producers, thus creating an inter-connection within the chain of values, which might almost be termed a quality chain.

The Steff-Houlberg case study permits a number of interesting observations. It is notable that ISO certification is carried out as a joint project involving all company employees. In this connection it is striking that the various projects are all instrumental in conveying an overall understanding of this quality concept. Thus, it is not a one-sided behaviour therapy, but rather a change of attitude resulting in changed behaviour. Moreover, it is remarkable that all the employee groups generally displayed great interest in the project. Typical reasons given for this interest were that they were able to immediately grasp the sense and soundness in the management's presentation of a project which so strongly stressed "quality control" as a development strategy. It has certainly proved profitable in terms of continuing vocational training activities; already, after the first year, it has been possible to demonstrate a number of economic improvements. The Steff-Houlberg experiences will eventually be placed at the disposal of all Danish slaughterhouses. From the very start the project was planned in such a way that the results could also be used in other companies.

This study proves that total quality control is of decisive importance to the continuous development of the Danish food sector, especially in relation to the internal market. It is, however, to be noted that the introduction of total quality control cannot be limited to the food sector alone. The fact that the sector handles biological material makes it necessary to include the primary producers on equal terms. Major difficulties are to be anticipated when integrating these two sectors into the process, but the Steff-Houlberg case study provides, in this respect, an example of "best practice".

It is recommended that future projects are specifically aimed at developing quality control programmes for the different food sub-sectors, namely programmes which emphasize the connection between manufacturing and primary production. Projects and studies which involve the opportunity of transferring to other types of company should be given a high priority.

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3.

The growing unemployment rate in Europe is a serious threat to the continuous development of European expertise. The fact that the future intake on the European labour market will be reduced, combined with a falling youth population will create problems if the in-house training of the existing workforce or the retention of the skill levels of those currently employed is unsuccessful.

An interesting Danish approach is the current endeavour to implement systems which will connect initiatives for the unemployed with the need for increased continuing vocational training efforts.

There is a strong political desire in Denmark to change the unemployment system so that the unemployed individual is no longer a passive recipient of public assistance but is activated either by means of training or a job of, albeit, limited duration. The goal is for the unemployed individual to either improve/change his/her occupational skills or at least keep in touch with the labour market. The newly implemented VUS scheme is a publicly financed scheme enabling employees with little or no educational qualifications to participate in courses during working hours.

VUS course subjects are aimed at improving general skills, (e.g. language, spelling, reading, etc.). However, the subjects may, to a certain extent, be sector oriented. Several case studies undertaken have revealed great interest in the VUS scheme which is considered to be directly applicable to the fulfilment of strategic company goals. In addition, the scheme is particularly relevant to the food sector, as many employees have a poor educational background. A general up-dating of the employees' general education level is considered a prerequisite for a subsequent, targeted continuing training programme. The VUS scheme appears to offer a number of interesting possibilities with regard to the endeavour to integrate initiatives to relieve unemployment and raise educational levels; the possibility of establishing rotation schemes seems to offer great potential.

Rotation schemes are an arrangement whereby a previously determined number of employees undertaking a permanent training programme are replaced temporarily by unemployed individuals.

The advantages accruing from this scheme are that the unemployed keep in touch with the labour market and, at the same time, the company skill level is raised. These schemes seem to offer a great deal of potential, particularly in the food sector with its many simple work tasks. Furthermore, the company itself takes an active role in identifying the content of VUS programmes. It should be noted that the law imposes severe restrictions on the VUS scheme regarding the arrangement of continuing vocational training programmes adapted to companies.

It is recommended that future programmes concentrate their efforts on studies and continuing vocational training programmes which focus on training as a lifelong process. In this respect it is extremely important to involve elements from what could be called "basic skills". Studies and continuing vocational training programmes should, to a considerable extent, be aimed at companies who employ people with no or a poor educational background. The Danish rotation and VUS systems could serve as an inspiration in this respect.

It was apparent throughout this study that the Danish food sector is highly aware of the many iniatives taken in recent years by the Commmission regarding the food sector. This highlights the numerous directives with direct relevance to the food sector, the vast majority of which have been followed up by national legislation and which have been thoroughly discussed.

Danish food sector companies have directly and systematically aimed to incorporate the directives into the planning of company strategic development opportunities and have also demonstrated a willingness to earmark resources to provide the necessary continuing vocational training involved.

The general attitude amongst the social partners and the companies is in favour of an open and free European market for foodstuffs. Initiatives to create equal competitive conditions with the EC are supported.

It is recommended that different kinds of initiatives should be introduced with the objective of ensuring the implementation of training programmes linked to the numerous food sector directives.

These programmes should have a distinct European base. One could imagine the establishment of a common European cooperation network amongst food sector training bodies identified by the Commission as "centres of excellence". Following the developmental stage, these centres would regionally offer different types of continuing vocational training with the aim of ensuring a standardized educational implementation of EC directives on a European level.

A typical feature of many of the directives is the aim to raise the quality of fully processed foods. These directives, which are often justified by consumer preferences, thus encourage the individual company to be able to certify its quality control and production process. Assessed from the continuing vocational training viewpoint, this initiative has frequently tended to impart a joint attitude to all employees, e.g. hygiene and

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quality. It is interesting to note that in this context the social partners clearly feel that they have a common interest. This is concretely reflected in the fact that companies arrange continuing vocational training programmes involving the adaptation of both attitude and behaviour, activities which are often joint arrangements regardless of working tasks and status in the company. The Steff-Houlberg case study substantiates this trend quite clearly.

A problem raised by Commission initiatives in relation to the food sector lies in the fact that they do not set aside resources to implement the necessary national continuing vocational training but leave this to national legislation.

Another interesting feature of the case studies is the high demand for skills. There is a distinct trend, much higher than previously, to seek qualification of a hybrid or general nature. The explanation for this is likely to be found in that fact that increased process automation necessitates a completely different work organization which breaks completely away from traditional specialities and skills. It is, therefore, important to the companies that the individual employee is multi-skilled and able to take a comprehensive view of production. The trend applies to the companies' introduction of new production technology. It has been found that to a greater extent than previously, companies are demanding more general skills, e.g. management and cooperation and communication, together with an overall understanding of the total process flow. In the immediate future, a change in employee skills can be expected in the Danish food sector. New skills will gradually be added to traditional occupations, preferably from the commercial field.

It is considered that "manufacturing change" within the food sector will be of significant importance in the near future.

In this connection it is recommended that analyses and studies are commenced with the objective of throwing light on the workforce skills relating to the production and automation process which the food sector is undergoing; it is assumed that the sector will demand further and more hybrid skills, especially of a technical and commercial nature.

Projects and analyses, whose object is to emphasize continuing vocational training as the individual company's potential development strategy in the face of this change, should be given a high priority.

Despite preliminary expectations, an increased interest in continuing vocational training courses has been identified throughout the study in terms of both the social partners and the companies. A clear tendency to regard continuing vocational training as an investment in the future is eclipsing the view that continuing vocational training is an additional company cost. Continuing vocational training is an investment in the future that will strengthen the competitiveness of the individual company.

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CEDEFOP — European Centre for the Development of Vocational Training

Training in the food and beverages sector in Denmark

Ole Holst

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